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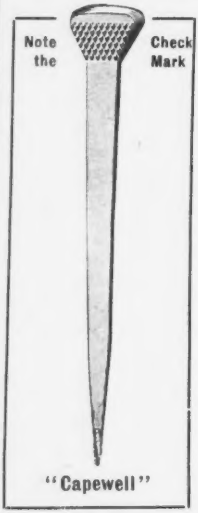

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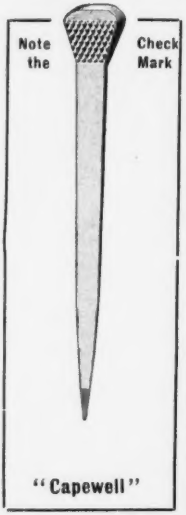

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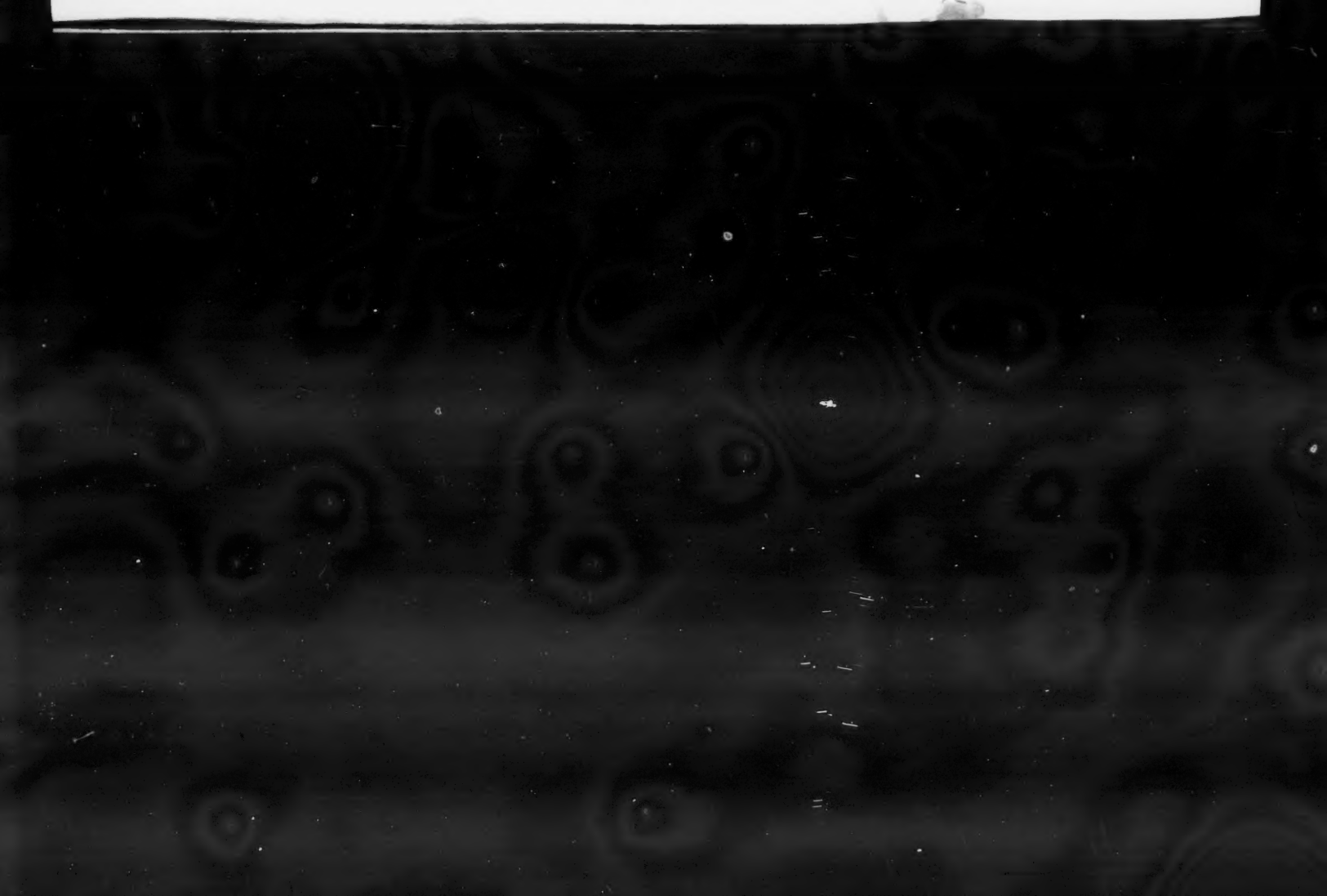

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The next Regular Annual Meeting of the U. S. Cavalry Association will be held in Grant Hall, at Fort Leavenworth, Kansas, at 4:00 P. M. on Monday, January 16, 1911, as provided in Section 1, Article VI, of the Constitution of the Association.

A list of the members of the Association who are on duty at Fort Leavenworth will be found on the back hereof.

Please fill out, sign and return the proxy hereon below and mail the same to the Secretary without delay. Cavalry officers on duty with their regiments can save trouble by handing the same to the regimental member of the Sub-Council.

Very respectfully,

EZRA B. FULLER,
Lieut. Colonel U. S. Army, Retired,
Secretary.

.....

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I being a {REGULAR / ASSOCIATE} *member of the U. S. Cavalry Association, in good standing, do hereby constitute and appoint*

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For the improvement of the Journal of the Association or for the good of the cavalry service generally, I suggest the following: .....

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JOURNAL

OF THE

United States Cavalry Association.

Vol. XXI. NOVEMBER, 1910. No. 81.

THE FORT RENO REMOUNT STATION.

By Captain W. C. SHORT, Thirteenth Cavalry.

I HAD the pleasure during August of this year of making a visit to the Fort Reno Remount Station, and I feel that the mounted service would be interested in knowing of the great progress that has been made by the Quartermaster General and the remount officers towards the betterment of the class of horses furnished the Army.

I visited the Reno Remount Depot two years ago and saw it in its infancy, and upon returning there in August I was very much surprised to see what had been accomplished in the short period of two years. I saw about 650 horses from 2 to coming 5 years old, all in magnificent condition and properly cared for; 450 of these horses were 4 years past. These horses are the best average lot that I have ever seen purchased for our cavalry, and are far different from the class of horses that have been furnished us of late years. They have evidently been selected on a good standard of conformation with the view of their suitability for saddle purposes. I saw the majority of the 4-year-olds under the saddle.

The equipment used on these horses was the snaffle covered with leather, and a cow saddle with a single cinch, rider without

spurs. I did not see a single horse that was not perfectly gentle and kind, and, what was more pleasing than anything else, not a single horse was carrying his head in the air with his nose stuck out to get away from the bit. These horses were trained to go to the front very deliberately at a walk, trot and canter, and to stand perfectly still while being mounted on either one side or the other. In the majority of cases the rider threw down his reins and slid over the croup as an example of the kindness of his mount.

When one considers that formerly we were accustomed, in the mounted service, to receive horses that had been mishandled by the contractor in order to be able to show the inspecting officer that the horse could walk, trot and gallop, it should be a pleasure for a troop commander to receive his quota of remounts thus properly started on their training, and in a frame of mind to receive higher instruction before entering the ranks.

In going into the fields I noticed a great sign of proper handling in the fact that the horses all came to meet us, showing that their first impression under training was kindness. I found also that they handled very gently under the herders. Any cavalryman will be able to appreciate how much this means. I found the 2-year-olds were a very superior class, this being due to the fact that the buyers are able to purchase a 2-year-old at a reasonable price.

The service at large should appreciate the fact that this system will soon provide a very much superior horse than it has ever been furnished before, and this because it is possible to buy a superior colt at a reasonable price before the breeder has been under the expense of keeping and breaking him.

Nobody can understand how difficult it is to find horses suitable for saddle purposes at the present day unless he has had experience in purchasing them. Having spent several years trying to locate some section of the country where I could procure suitable saddle horses that could be purchased at a reasonable price, I found it more difficult each year to find them.

If General Aleshire had not taken up the matter when he did, and if he had not so ably handled the herculean task at this moment, the prospects of bettering our mounts would be very slim indeed. I believe the question has been solved in the only

way possible, *i. e.,* to purchase colts (and older horses when possible) and put them on a remount farm until they are old enough (4 years) to break to ride. They then have learned to be content away from their homes, to live in a herd, to be stabled under the same conditions that they would meet in the service, and in all probability will have gone through all the distempers and ailments that are sure to come to the young horse after being taken away from his home life. He will have received the proper start in his training, as the first impressions of a horse are the most lasting ones.

With this system it is up to the troop commander to continue the training so well begun, and if the horse does not turn out well the officer has no kick coming.

When the system of condemning not exceeding 10 per cent of the horses per year has had time to bring its results, the young remount can be kept out of the ranks long enough to have him properly prepared before he is put into troop work.

Two years is the cast iron minimum training period of the remounts in the European armies. I do not hope to see regulations requiring as long a period of training as two years go into effect in our army, but I do hope to see a strict regulation prohibiting a magnificent 4-year-old going into ranks two weeks after arriving at a station, handicapped with a curb bit, a recruit and a pair of spurs.

One of the most pleasing sights at Reno was the condition of the horses; their coats were shiny and they were in good flesh. Saying that means much. It was not the soft, flabby fat of the horses formerly furnished by the contractor, which was put on with molasses and alfalfa in order to cover faulty conformation and to make the weight, but good oat flesh and muscle from reasonable exercise. The horses obtained from the remount depot are ready to go to work; the horses formerly obtained from the contractors were not.

All this system that obtains at Reno has not been easily accomplished. Upon returning from my visit two years ago I told my comrades that I was sorry for Captain Hardeman, who is the officer in charge at Reno, as I considered that he had the biggest job on his hands of any one man in the Army, and I be-

lieve he did have. How well he has handled the proposition certainly speaks for itself. He has had only one assistant, but a very able one, Lieutenant W. P. Ennis, 1st Field Artillery.

The pastures have been enclosed with woven wire; wells have been sunk; feeding sheds constructed; stables for the horses in training have been built, and a modern veterinary hospital is in good running order. The old barracks are used as bunk houses for employes. An excellent mess for the employes is maintained. A considerable oat and corn crop and all the hay is raised on the reservation. This year seventy acres have been sown to alfalfa. This acreage is to be gradually increased so as to supply all the alfalfa hay needed and to provide sufficient pasturage.

But not the least of Captain Hardeman's troubles is the civilian personnel—I mean the riders. At first he tried the professional bronco busters and cowboys, but soon found that they, especially the wild west show riders, spoiled more horses than they were worth. It finally settled down to the few among the cowboys who could adapt themselves to handling horses gently, the farm-raised type, and a few discharged soldiers. But the constant change which is bound to occur in a body of men where they are not obliged to remain is very trying, especially after much time and patience have been put into their training for the work.

But, notwithstanding the many difficulties experienced in getting and retaining the proper kind of men, there are a few of the riders who have been at the depot practically since it started and who have contributed not a little to the successful handling of the horses. During the past year there have been upwards of 450 horses broken, every one of which had to be ridden bareback before a saddle was put on him. I note these items to show a part of the immense task which Captain Hardeman has so successfully handled.

Another difficulty has also been solved. It is known how hard it is for officers to obtain a suitable mount, from the number of letters I receive from all parts of the Army requesting authority to purchase horses from the Mounted Service School. The Remount Depot affords an opportunity for an officer to

choose a horse from a great number at the first cost to the government, an advantage which few outside of the service could hope to have. Since the Remount Depot was started there have been sold to officers sixty-three horses to date.

It must be understood that not only cavalry horses are handled at Reno, but artillery horses as well. I saw teams of 4-year-olds in the different stages of training hitched to caissons with the regulation artillery harness. As a test of the efficiency of the training two caissons were loaded with sand, making the weight to be drawn 5,000 pounds. The teams crossed a very deep ravine with very severe slopes. On the slopes coming out of the ravine the teams were halted and then started. I have never seen young horses go into their collars more deliberately and together. I asked the average weight of these 4-year-old teams and was told that one team was 1,130 and the other 1,170. These horses were not of the slow draft type, but were of the quick draft type, and had shoulders with the proper conformation to bear a collar.

I have asked the CAVALRY JOURNAL to publish this article because I have always been a kicker regarding the class of horses furnished our mounted service, and I feel that the Army should know what strenuous efforts are being made by the Quartermaster's Department to help us out. I did not know this myself until I visited the Fort Reno Remount this time. I understand that the Remount Depot at Fort Keogh is fast being put into the same condition.

CAVALRY TRAINING.

By Lieutenant B. K. EDMUNDS, Eighth Cavalry.

IN the history of warfare there has been no time when more was demanded of a cavalryman than there is today. He must not only be an expert with its own peculiar weapons, the horse and the sword, but must rival the foot soldier's steadiness in dismounted fighting, and must equal or excel his skill with the rifle. In addition he must be a horseman in the broadest sense of the word, must be an experienced and trustworthy scout, and, in our own service at least, must be able to render a good account of himself with the pistol. To educate men up to this standard in these days of short enlistments, some system of training must be adopted which will make use of every minute to the best advantage.

This is well understood in Continental Armies, and the training of the Cavalry in France and Germany has reached a high standard of excellence. We, however, cannot blindly follow their methods, for the conditions which confront us are radically different from those which exist in the nations of Europe. To be successful, our system of instruction must be in harmony with our history, traditions, organization and government. To adopt for a republican and volunteer army methods which are used in a nation having universal and compulsory service, a highly organized reserve, and an elaborate remount system, would be obviously absurd.

The things in which the Cavalry should be trained fall naturally into three classes, *viz.*:

1. Training for mounted action.
2. Training for dismounted action.
3. Training for marching and reconnaissance.

The first of these classes will include horse training, the schools of the trooper, troop, squadron and regiment. The sec-

ond class will include dismounted training in attack and defense and the use of the rifle. The third will include practice marches, training in patrolling, outposts, messages, map reading, etc. To the third of these classes we have lately been devoting much attention, but the first has received little encouragement from higher authority, and the troop officers have, through lack of time, been forced to neglect it. In so much of the second class as relates to the use of the rifle we have been remarkably successful, and while the tendency of our regulations has been to develop individual target shots rather than trained units for battle, still it can safely be said that our Cavalry now shoots better than any troops in the world except our own infantry.

However, much as we may excel in this one particular, it does not excuse us from our neglect in other directions, for it is but reasonable to believe that troops which are equally and symmetrically trained in all the branches of their profession, must in an extended campaign have the advantage over those which excel in one branch at the cost of others equally important. Our mistake in failing to provide a system of training in mounted work becomes more apparent when we consider that we are the only nation where the horses are trained by the men that ride them, where recruits join their troops without training in riding or even the dismounted evolutions of cavalry, where there are no riding schools or riding masters, where, in short, the troops must do all the work.

It has already been said that we have attained a high degree of success in rifle practice We can reasonably suppose that if certain methods give success in one branch of training, similar methods judiciously applied will give success in other branches. Let us see what methods have been used to improve our records in rifle practice. We find that:

1. A certain fixed period in each year is set aside for target practice; a progressive schedule of training is laid down for this time. Each man starting with the extremely elemental work each year, and gradually progressing to the more difficult as the season advances.

2. Substantial pecuniary reward is given for excellence displayed by individuals.

3. Emulation is encouraged between the organizations by publishing their relative standing.

4. "Interest is kept up" by competitions, in which the crack shots participate.

These are the methods which have been used to improve our shooting; let us see if similar methods could be used to improve our mounted work. I take it that the first essential to improvement is that a specified time be set aside for mounted training, for under present conditions no progressive work is possible. A recent order required, in this Department at least, that each troop spend six days in each month on "field training." Two night maneuvers are required each month, on the days following which the troop may be excused from drill. When to the time thus taken up is added the time used in practice marches, the time spent in the supplementary target season (about two weeks in each fall), and the days lost due to inclement weather, it becomes apparent how little time can be spent on horse and man training; indeed, a troop will not average three days' instruction a month in these essentials during practical season, and the lessons are so far apart that both men and horses forget what they learned in each preceding lesson and no progress is made.

The question now arises, what proportion of the year should be devoted to each of our three classes of training (dismounted training, mounted training and field training)? There are seven months in the practical season, and of these three are already assigned to target practice. Considering first the years on which no maneuvers are held, there are four months remaining, and of these I believe that three should be devoted entirely to mounted training. The three best months would be July, August and October, leaving September for the field training, which is, all things considered, the best for this purpose throughout the country, being neither too cold in our Northern states nor too warm in our Southern to work comfortably out of doors. On maneuver years the time spent on mounted training will be reduced to two months.

As our target practice starts each year with elementary drills in sighting and aiming—so our mounted work should start with elementary drills in riding and horsemanship—for horseman-

ship is the absolute foundation of all cavalry work, and we can expect neither cohesion in maneuvering nor endurance in the field unless both men and horses have received a previous thorough individual training. The mounted season should then start with three weeks' work with the longe and snaffle, giving the men seat, hands and aids and teaching the horses to go up to the bit, the regulation gaits, and to answer to the aids. Some training in jumping should also be given here both on the longe and with the snaffle, until the horse has learned to move freely against the bit; practice in passaging, backing and turning on the forehand should be delayed. At this period it would probably be better to have two short mounted drills (about an hour each) rather than one long one. At the dismounted drills the men should be given the preliminary work with the saber and pistol, as well as close and extended order drill with the rifle. During the first month of the season the troop commander will have an opportunity to pick the men best qualified to handle recruits, and new and backward horses.

The first three weeks of training should be followed by a careful inspection by the squadron commander or other senior officer, to decide what men and horses will be continued in the preliminary work.

From this point we can go on to the training with the curb, making the horse ready to take his place in ranks, and the man thoroughly familiar with his mounted weapons—the saber and pistol. The training of a troop horse need not be extensive, but should be thorough. He should know the three gaits, should move freely on the bit at all times, answer quickly to the aids, change lead in the gallop, passage and back readily, jump anything up to four feet high and six feet wide—these are the essentials; anything beyond is superfluous, and may be harmful. In this stage of his training the soldier should have his saber or his pistol almost constantly in his hand, and should practice with them until their use becomes automatic. This period of training should last until the third week in August, and should be followed by an inspection in the use of the saber and pistol and the training of the horse for work in ranks. The training in jumping must be completed in the fall, after the field work.

If the practice march comes in September, there remain two weeks for the school of the troop, and with the individual training which the men and mounts have received, on which excellence in close order work depends, this should be sufficient. It would be well to gradually increase the weight carried during this time so that when he leaves the garrison the horse will be accustomed to the full pack.

October should be devoted to troop, squadron and regimental drills and minor tactics. The horse's education in jumping should be continued, and cross-country rides made. Squadron and regimental drills should consist for the most part of field exercises; that is, each movement should be made in conformity with the ground, an assumed object, and often an outlined enemy. To a limited extent the formal squadron drill at the drill ground is useful in teaching formations, gaits and distances, but it can safely be said that to lay down and drill any fixed and formal formation, either mounted or dismounted, for use in attack or defense or on service, cannot but work harm. This instruction can generally be continued well into November. Some time in October the annual inspection should be made, and it should be a comprehensive one. It would be well to have the property inspections and the troop inspections made by different officers. The one inspecting troops should spend at least a week with the command to which he is assigned, and his report should be thorough and critical. It is on the comparisons made on the various inspections that we must depend for the incentive to do well among the troop commanders; without some incentive to work, little can be accomplished.

On maneuver years everything in the beginning of the season must be subordinated to the effort to get the horses and men in condition quickly for the march. If the march is made to the maneuver grounds, the troops should not start before August, thus giving a month to harden the horses. This will throw the maneuvers in late August and September, which is a good time as regards weather. The practice of starting troops on a long march immediately at the close of the target season is faulty, because neither men nor horses are prepared for it. During target practice the officers are so continually on the range and the pit details are so large that almost nothing can be done

with the horses but an hour's leading or an afternoon's herding a day, and they are not fit either for weight carrying or marching by the first of July. A month's training before taking the field would save us many sore-backed and foundered horses, and enable us to do much better work in maneuver problems.

It is too early to discuss the new firing regulations at present. They seem much more practical than the old, and the field firing prescribed fills a long felt want, in training our troops as units and under conditions approximately more closely to those of the battlefield. One thing the new regulations do not do, and that is make the individual course shorter and simpler. With the more intricate and more numerous targets used, the pit details must be larger and more time must be consumed, thus making it harder than ever to keep a cavalry command in shape during the target season.

Competitions, if held at all, should be held during the target season. They should not be allowed to encroach on the time which should be devoted to mounted training and field training. Competitions, in any case, are of doubtful value. They are a great expense to the Government, and cause the absence from their posts of a large number of trained men. The men who receive the training they give are for the most part those who would not fire a shot in battle, being almost invariably high ranking non-commissioned officers, and the training they receive is given under such artificial conditions that it is doubtful if it is of any practical value.

Let us consider now the training in field work. We have assigned a month for this purpose, and, if properly utilized, this time should be sufficient to teach the principles of castrametation, cooking, transportation and field hygiene. Thirty days would seem to be enough for this without the monthly marches. These latter, on account of the limitations of time, camp sites, water, forage, etc., must always cover nearly the same ground, and the problems of one month have all been solved a month or two before. In the long march, on the contrary, each day presents a different problem.

It is becoming recognized in our service that the best and most practical way of learning the service of security and information is by participation in minor tactical problems. The

thirty-day march will offer many opportunities for these under the most varied conditions of terrain. Problems in outposts, advance and rear guards, patrolling, convoys, etc., can all be made both interesting and instructive. Marches of not over five or ten miles should be made on days when these problems are held, and they should be followed by a short criticism by one of the senior officers before the officers and N. C. O.'s participating. Further instruction on the same lines can be given during the regimental exercises in the fall. Additional instruction can be given to officers during the theoretical season by means of the map maneuvers. In this regiment two troops have extended this form of instruction to the non-commissioned officers' school. The one-sided map maneuver is well adapted to the teaching of the handling of small patrols, writing messages, etc., and it is certainly superior to the mere "specking" of the rules and plates in Wagner and the Field Service Regulations.

The changes in our method of training which have been so far suggested could all be accomplished by orders from the Army itself, and would cause no additional expense to the Government. They would require no additional legislation.

It is difficult to leave this subject without referring to other changes which would be of benefit to the cavalry. One of the most pressing needs at present is some change in the method of training recruits for the mounted service. Recruits now joining their commands do so often with six or nine months' service, yet they cannot take their place in ranks even at dismounted formations. It would seem that recruits enlisted for mounted service might at least be trained at the depots in the dismounted drill of the arm to which they are to be assigned.

Perhaps owing to additional expense, the establishment of separate recruit stations for the mounted service would not be looked on with favor, but there can be no question that this would greatly increase the efficiency of our cavalry. Under competent commandants, which the school at Fort Riley can now furnish, three months' training at such a station would not only make each recruit much more valuable to the organization which he joins, but would in a short time greatly improve the standard of horsemanship throughout the service. A few years would develop at the depots an organization and a personnel fitted not

only to train recruits, but also remounts, and our cavalry could be kept up to standard both in peace and war.

It is well known how our regular regiments deteriorated after the Santiago campaign owing to the vacancies being filled with raw recruits. Under present conditions a year's hard service would make our regular cavalry little better than volunteers, for, unlike most of our possible adversaries, we have no trained reserves to fill the gaps in the ranks.

The systems of rewarding excellence in marksmanship by increase in pay might well be extended to include other weapons besides the rifle. One Master of the Sword in each troop, selected from among the non-commissioned officers, with increased pay, would do much towards improving our swordsmanship. A grade for pistol shots could be established as well as one for horsemen who are able to pass a theoretical and a practical examination.

That the changes herein suggested would not turn us into perfect cavalry is freely admitted, but that they would make a great improvement is not the less firmly believed. It is not to be expected, for instance, that six weeks' horse training will make either perfect mounts or perfect horsemen, but six weeks' systematic and continuous training would be worth three years of our present haphazard methods.

What we most need is to realize and to act on the fact that Cavalry has several functions, all equally important; that perfection does not lie in a high figure of merit, or in marching a thousand miles a year

THE TACTICAL AND STRATEGICAL USE OF DIRIGIBLE BALLOONS AND AEROPLANES.*

By Colonel JOHN P. WISSER, Coast Artillery Corps.

INTRODUCTION.

My interest in the subject of dirigibles dates back to the beginnings of that new element in warfare. As editor of the *Journal U. S. Artillery* I became interested in the earlier attempts of Count von Zeppelin and have followed his various efforts ever since.

For about three years past, while on duty as military attaché in Berlin, I had occasion to see a great deal in this line—day after day for weeks and months I used to see the Parseval and the Gross balloons sailing over Berlin past my house, and had opportunity to study them on their maneuver grounds at Tegel; moreover, I visited Friedrichshafen to see the Zeppelin balloon and its great balloon halls on Lake Constance, and witnessed the wreck of the unfortunate one at Echterdingen on the Neckar.

THE conquest of the air by the invention of dirigible balloons and flying machines or aeroplanes is not only the greatest invention and discovery of the century in a general sense, but is also a matter of vital importance to the *military* world.

The phenomenal improvement in firearms of all kinds, including cannon of all calibers, as regards fire effect and rapidity of fire, and the introduction of improved powders and explosives

*Lecture delivered before regular and militia officers at Camp of Instruction, Chickamauga Park, July, 1910, and before Georgia National Guard Officers' Association.

which have taken place in recent years (improvements still going on constantly) have entirely changed our original conceptions of the terms "distance" or "range" in battle, and extended them far beyond the old limits. The result is that a modern battlefield presents a very different picture today from that which was seen only two or three decades ago—the points of difference becoming more and more marked every year—and the commander-in-chief of an army, as well as the subordinate commanders, will not only find greater and greater difficulty in keeping in communication one with another and obtaining reliable information of the enemy's movements and measures, but the *importance* of so doing is constantly increasing.

In other words, the relations of time and space constantly play a more and more important role in a campaign as time goes on, and the army that excels in bridging over the greatest space in the shortest time is very apt to be victorious. To accomplish this the armies of the world utilize every available means of communication, and the dirigible balloon and the aeroplane are the latest developments along these lines and constitute factors of the highest importance for this purpose.

The increased effect of fire above referred to has, however, had a result which is of great significance in this connection, namely, the tendency of armies to leave the landscape empty of troops, even on the battlefield, either by doing their work beyond the enemy's range, or, if within that range, by screening the troops as much as possible from his view or fire action by making full use of natural cover, by using so-called war colors for uniforms and material, or by means of protective armor shields. As time goes on, less and less is actually visible on the battlefield or in the theater of war, and this makes reconnaissance and observation of the enemy all the more difficult. These conditions at once emphasize the vast importance of dirigible balloons and aeroplanes as powerful elements in the service of security and information.

The advantages of these new elements in reconnaissance become particularly apparent when we consider the difficulties in the way of ordinary reconnaissance by cavalry or infantry. For example, in observing a column on the march, such as a division,

which can be approached only to within a certain distance, it is practically impossible to see another division in rear marching on the same road, and yet the knowledge of this fact may be of vital importance. Again, in reconnoitering a position, it is impossible, even by using a number of observers at different points, to tell with certainty whether the enemy's force is merely one for holding the position or represents a concentration preparatory to making an attack with a view to breaking through the opposing front; the *importance* of this knowledge is too evident to require comment.

These difficulties in reconnaissance have led commanders in the past to make use of *demonstrations* in order to keep the enemy occupied either at one point or all along the entire line with a view to concentrating at another point or on the flank of the line. But in heavily wooded country, like the wilderness in Virginia, for example, it is impossible to get any definite insight into the enemy's measures by the old methods from a point on the earth's surface. Moreover, such demonstrations are often costly in men and exhaust the troops. Dirigible balloons or aeroplanes solve the difficulty by affording the commander a view of events transpiring behind the veil that screens his front, and this without any losses.

These new means of reconnaissance, therefore, change many elements in modern tactics, and the present system of screening and all the old methods of deceiving the enemy will be greatly limited in their effects, while the consequences of the relative strength of the forces engaged will be more severely felt.

Reconnaissance in war will hereafter be more thorough than in the past, and commanding generals will obtain more accurate information of the enemy and keep up better communication between the subdivisions of their own troops, but this will not always make their ultimate task any easier, because of the graver responsibilities resting on their shoulders. On the other hand, neither will ignorance of the enemy's positions or actions (as it has so often been in the past) be an excuse for making mistakes in strategy and tactics in the future. Indeed, as in all other innovations in the art of war, the commander-in-chief who is a good strategist and tactician will profit by this new war material, whereas one who is weak in one or both respects will

necessarily suffer by their use in the theater of war, provided his adversary has the ability to properly utilize the better information he receives.

Dirigible balloons and aeroplanes, therefore, will not make strategy as an art, or tactics as a science, any easier, but will facilitate the execution of sound strategical or tactical plans, by furnishing better, more definite, more complete and more comprehensive information regarding the enemy's positions and forces.

As a means of communication or of obtaining information, the aeroplane and the dirigible balloon surpass not only the older means, like the telegraph, telephone, bicycle, etc., but also the later developments of these, such as wireless telegraphy, motorcycle and automobile. Wireless telegraphy enables the automobile, in spite of the great distances run, to keep up communication with the base, without laying the long lines of wire required by the telegraph or telephone, but the dirigible balloon or the aeroplane combines the respective advantages of both automobile and wireless, in that it possesses great speed, the possibility of direct personal communication, as well as freedom from long lines of wire, and over the automobile it has the further advantage of being independent of bad roads and of all natural obstructions, such as rivers and other waterways, etc.

These are the general principles and characteristics common to all air machines, whether dirigible balloons or aeroplanes. We will now consider the special characteristics of each.

DIRIGIBLE BALLOONS.

The number of dirigible balloons in existence at present is very limited; there are twenty-eight in all, of which Germany has thirteen, France seven, Italy two, and the United States, England, Belgium, Austria, Russia and Spain each one. Their size or capacity varies from 700 to 15,000 cubic meters, their length from 100 to 450 feet, and their diameter from 19 to 40 feet. Most of them have but one gondola, but the Zeppelin airships have two. The number of motors varies from one to four, the strongest being of 135 horse-power. The greatest speed was attained by the German military airships of Major Gross, which

made about 36.7 miles an hour, and the greatest height was reached by the Parseval airship, which rose to 5,000 feet.

About twenty-five dirigible balloons are now building in the different armies of Europe.

Germany is therefore far in the lead of all other nations in the matter of dirigibles.

Three distinct types of dirigibles are generally recognized, differing in construction, portability and other qualities, and therefore in their military use, namely, the *rigid*, represented by the Zeppelin airships, in which the balloon body or envelope is enclosed in and supported by a rigid framework of aluminum rods, to which the gondolas and other parts are attached; the *semi-rigid*, represented by the French airship *La Patrie*, which was lost, or by the German military airship of Major Gross, in which only the framework of the gondola and its attachment to the buoyant body or envelope is rigid; and, finally, the *non-rigid*, the best example of which is the Parseval dirigible, which has no rigid parts whatever.

The German airship fleet at the beginning of the present year comprised three of the rigid, five of the semi-rigid and six of the non-rigid type.

The rigid type will find its principal application in strategy, over the entire theater of war, or along the entire front of strategic deployment of the enemy on the frontier, while the semi-rigid and non-rigid types will be used mainly in the domain of tactics, and the non-rigid more particularly with the advance troops of the field army.

The rigid type requires balloon halls to be established at convenient points for its safe housing, but has great carrying capacity and theoretically there is no limit to its possible size. It has an average speed of 30.2 miles an hour, but has made 35½ miles an hour, and has shown itself capable of remaining in the air for twelve hours continuously. It could therefore have covered the entire front of strategic deployment of the French Army in 1870 from Muhlhausen in Alsace via Belfort to Trives, and reported back at headquarters within twelve hours with a full report of the situation, giving the German commander-in-chief a complete insight into the French strategic deployment; or in the Civil War it could have gone from Washington via Fred-

ericksburg and Richmond to the Shenandoah Valley and back again to its base, bringing a detailed report on the entire Confederate position. It is hardly necessary to emphasize the importance of such information in these or similar cases.

The Zeppelin airship can carry from eight to twelve persons easily and has taken as many as twenty-six; consequently there is no difficulty in quietly taking observations from on board, and the photographs taken during the various trips of the different Zeppelins are excellent and give all necessary details.

The great defect of the rigid type of airship is its liability to injury or destruction when exposed in the open to the elements, and airship halls at various points are absolutely necessary for its protection. The German War Department proposes to construct such airship harbors in all its principal fortifications. Strassburg, Metz and Cologne on the western frontier already have such harbors of refuge, and the next places to receive them will be Königsberg and Thorn on the eastern border. France has established her airship harbor at Epinal.

These harbors are to contain all arrangements necessary for assembling, filling, housing and protecting airships, including airship halls, gas plants, workshops, etc.

The semi-rigid and the non-rigid types (particularly the latter) are designed especially for portability, so that they can be carried along by the field army. The rigid portions of the former are made so that they can be folded up for compact packing in transportation; nevertheless, the non-rigid is by far the more easily portable.

The performances of these types have thus far been at least equal to those of the rigid type, in spite of their much smaller volume and lower cost. The Zeppelin, with a capacity of 15,000 cubic meters, has made a speed of 33.5 miles an hour, and its longest trip has been 12 hours; the German military (or Gross), with a capacity of only 4,800 cubic meters, has made a speed of 29 miles an hour, and its longest trip lasted 13 hours, but the latest model (M. III), which has had a number of trials, but has not yet completed its final tests, has a speed of over 30 miles an hour. Finally, the Parseval, with a capacity of only 3,200 cubic meters, has made a speed of over 34.6 miles an hour and

an endurance trip of 11¼ hours, and the latest model is far superior to this.

The semi-rigid balloon must be taken apart for transportation and some time is required for assembling it and preparing it for action.

The non-rigid, on the other hand, can be carried on wagons to any point in the field of operations, unloaded, filled and prepared for action in a short time, and after making its flight can land anywhere in the open, be emptied, packed on wagons again and carried to any other desired point.

The Military balloon, therefore, is more suited for the work in fortified places, or the more permanent headquarters in the field, while the Parseval can directly accompany the field army in all its movements.

The latest model of the Military balloon (M. III) has a capacity of 6,500 meters, and has four motors installed in it, with a total of 300 horse-power.

All three classes of airships are fitted with wireless telegraphy for the rapid and constant transmission of important messages during a reconnaissance, and they are also provided with arrangements for firing grenades and explosive shell. They can all rise to a height of nearly 5,000 feet, or out of reach of small-arms or artillery.

AEROPLANES.*

Among the great discoveries of recent years the aeroplane, in its present efficient form, must be included, and, in view of its latest performances, it has a right to be regarded as a *serviceable* war material. It can travel by its own power for over four hours continually, making over 125 miles, taking its own course through the vast ocean of atmosphere without once resting on earth, attaining a maximum speed of sixty miles an hour, and rising easily to a height of 3,000 feet or more. (At Indianapolis recently Brookins rose to 4,384 feet.)

The rapid progress already made in the development of the aeroplane leads us to believe that the maximum performances above referred to will very soon be *average* performances for

*France has already produced over 800 aeroplanes, the market price varying from $3,000 to $5,000 apiece.

such machines, and experts in this subject predict that before the end of the year the following records will be made, namely, a maximum endurance flight of ten hours, a range of 450 miles, a speed of 62.5 miles an hour, and a height of 6,000 feet. The only factor that interferes with its development now is the aeroplane motor, and it is only a question of time when this will be made as perfect and reliable as the present automobile motor.

The grave question affecting the military value of the aeroplane at present is whether it is capable of coming into action promptly in any locality in the field. It requires a certain amount of level ground in order to make a good start, but, inasmuch as these machines in their latest forms can be readily taken apart, packed on wagons or pack animals and transported to any point desired, there is no reason why the needed level stretch should not be quickly found.

It must be remembered that other war material on the march is very rarely at the desired point at a given time and perfectly prepared for action—siege artillery or what is now designated as heavy field artillery or artillery of position, for example, and even field artillery itself—consequently we must not expect too much of the aeroplane; but when once the latter has left the ground it will soon make good the time required to bring it into action, in the first place by its great speed and in the second by taking the air line (or shortest possible way) toward its object.

Another objection to the aeroplane (and this has also been raised against the dirigible balloon) is the opinion that it cannot rise except in calm weather, but this is a mistake as regards the former. The German dirigibles have shown that they are capable of making flights on *three-fourths* of the days of the year, and in regard to the aeroplane, moderately strong winds offer no difficulties; indeed, some pilots prefer strong winds up to a certain limit of strength. In time of war, however, greater chances will be taken and aeroplanes will probably rise, no matter what the wind may do, provided the necessity exists—soldiers must risk their lives in this as well as in other branches of the service. It will largely be a question of the capabilities and the training of the pilot, consequently all the world's armies are working hard to build up a corps of experts in this line.

France has perhaps the greatest number at present, and our own army already possesses a goodly corps of experts in its Signal Corps. The other nations are somewhat behindhand. Germany, however, is rapidly improving, having acquired a number of American and French machines and imported French teachers to instruct the personnel; moreover, volunteer corps for aeroplane flights are being organized, and a subsidy law, to encourage the construction and importation of flying machines of all kinds (by paying a certain amount for each serviceable machine owned by a citizen of the country), is now proposed.

The great requirement for a *military* machine is easy transportation, and for this reason the American machines, especially the Wright and similar types, and the French Bleriot machines, which, when assembled ready for flight, take up no more room than an automobile, and which can also be taken apart for more compact packing, and can be readily assembled again for use, are well suited for tactical work.

The proper organization to be given the aeroplane troops has already been considered by military authorities, and the following has been decided tentatively:

Every army headquarters and every army corps division and brigade should have attached to it one or more aeroplane detachments, composed of three or four men as crew, two as pilots (one to relieve the other), and an officer well trained in observing from such rapid-moving machines to make the actual reconnaissance.

For use in the field the aeroplane should be mounted on an automobile body carrying the material necessary for repairs to the aeroplane, and manned by chauffeurs to run the automobile. This automobile body will serve to carry the aeroplane on the march, and, when required to go into action, to take it quickly to suitable ground for rising; moreover, should the aeroplane be forced to land for any reason the automobile body can hasten to its assistance; and, finally, it will serve as its repair shop, refuge and base of supply at all times in the open.

The great value of the aeroplane lies, of course, in its speed, the fact that it can rapidly pass over the enemy's troops and get an unobstructed view from above, and, if need be, rise out of the range of small-arms or field artillery, but, in order to fulfill

its mission properly, it must enable the observer to take *detailed* observations and record them for his report. But in this respect the aeroplane cannot, as yet, compare with the dirigible balloon.

It is very difficult, under the high speed, a quality inherent in this machine, even with a separate observer, to note *details* with any degree of accuracy, and it has been found impracticable thus far to take good photographs of the landscape from an aeroplane in flight; consequently, the aeroplane will probably be used in war not so much for detail reconnaissance, but more especially for rapid, superficial and general reconnaissance, furnishing information in broad outline only, and giving merely approximate data regarding the movements of our own or the enemy's troops at particular points, or the positions of the enemy's earthworks, etc., while the *dirigible balloon* in the air and the *cavalry* on the earth's surface must supply the details. But, in spite of the fact that the reports from aeroplanes will be limited largely to generalities, the information furnished will still be of great value to the commanders.

The cavalry in modern war has all it can do, and its burden of work is constantly increasing; consequently, every means of relieving it as much as possible must be resorted to, and the aeroplane promises to be one of the most effective means. The importance of using new means of reconnaissance is becoming greater and greater as the enemy becomes less and less visible on the battlefield, as the extent of the battlefield becomes greater and greater and as the relations of time and space in battle become more and more important, indeed, until the invention of the aeroplane and dirigible balloon there appeared to be great danger that the old means of reconnaissance would soon be entirely inadequate.

In the attack and defense of fortifications the *aeroplane* will have full scope and will be supreme as a means of reconnaissance. The defense can also use *dirigibles*, but the attack will find it difficult, due to the fact that its dirigibles would soon fall an easy prey to the balloon guns which will undoubtedly be installed in great numbers in all forts; the aeroplane will be far less subject to destruction in this way. The attack will, therefore, necessarily prefer the aeroplane, but the defense will also be well provided with such machines, inasmuch as permanent

rising places can be readily established in every fortified front in time of peace.

These are the leading facts regarding the military use of the aeroplane, and it is evident that this machine is largely limited to the domain of *tactics,* while the dirigible balloons are useful both in *strategy* and in *tactics.*

CONCLUSIONS.

The rigid type of dirigible balloon will find its greatest use in the domain of strategy over the entire theater of operations; the semi-rigid and non-rigid types (although also efficient for strategical work) are more particularly useful in the domain of tactics, and the non-rigid is especially suitable to accompany the field army.

The aeroplane is largely limited to the domain of tactics, and is especially suited for rapid, superficial reconnaissance and for use in the attack and defense of fortifications.

Besides reconnaissance and the service of security and information in general, these air-machines are particularly useful in reporting the effect of our fire on the enemy's troops or material, and may, in an emergency, serve to rapidly transport a few men or a small quantity of ammunition or of provisions to points of great importance. Moreover, they will be most useful in keeping up communication between the separated parts of a modern field army. The opinion has sometimes been expressed that the dirigible balloon and aeroplane will greatly reduce the value of cavalry in war, but this is absolutely incorrect and untrue. Both methods and means of reconnaissance have their respective advantages and disadvantages, and our armies need both.

Reconnaissance from an air-machine is dependent primarily on being able to *see;* consequently, this means of reconnaissance is out of action every day from evening to dawn, and at other times in fog or in very cloudy weather. On bright, clear days the air-machines have considerable advantage over the cavalry in that they can make accurate, connected observations and render prompt reports, but the more detailed but slower reports of cavalry, which can work by night as well as by day, in foggy or cloudy weather, by hearing as well as by seeing, disconnected although they may be, are still of as vital importance as ever.

The strategic reconnaissance by air-machines must stand constantly in close relation to and in direct connection with the reconnoitering cavalry, because the very information the air-machine obtains will facilitate the work of the cavalry in clearing up for it doubtful points. Otherwise, time and energy will be wasted. In this respect the work of air-machines is particularly valuable, inasmuch as they can float at ease in certain localities, readily changed from time to time, and remain secure in quiet observation. To be of use in this way, however, they must always be available when needed, and this condition is best fulfilled by the non-rigid dirigible balloon, because of its portability, and the fact that it can be quickly emptied of gas, packed up and transported to the rear when no longer required.

The aeroplanes are destined to carry on their reconnaissance side by side with the dirigibles, to assist the latter in their work, to keep them supplied with fuel and provisions, to carry messages over difficult ground, swamps, water areas, etc., where there is no telegraphic communication and for a great variety of other work. Wireless telegraphy is being installed on these machines, and if it proves successful their radius of action will be greatly extended.*

The use of dirigibles or aeroplanes offensively is now regarded as practicable, but rather by the use of high-explosive grenades and shell than by ordinary artillery fire effect dependent on weight of projectile, the purpose being rather to annoy the enemy and disturb his rest than to effect actual destruction.

When two opposing armies come in contact the first contest in future will probably be between the air-machines on either side, and here the aeroplane again has a decided advantage over the airship, in that it can (due to its greater speed and more rapidly acting vertical steering) rise above and pass over the airship, getting out of the view of the occupants of the gondola, and thus will have an opportunity of injuring the airship either by mechanically tearing its envelope or destroying it by means of firearms or grenades from above.

From the surface of the earth all air-machines are best reached by means of the modern balloon guns capable of firing

*Since the above was written McCurdy, in August, 1910, sent a wireless message from his aeroplane while in flight.

vertically upward and using illuminated projectiles to mark the line of flight, thus furnishing a means of ranging on the balloon. Aeroplanes will be very difficult to hit, and even the airships, on account of their cellular structure, cannot be put out of action by a single hit, while both classes can rapidly rise out of the range of artillery.

Neither airship nor aeroplane has altered the principles of strategy or tactics, but to the strategist they furnish a clearer and more comprehensive view of the theatre of war in a shorter time, and they enable the tactician to again see the enemy on the battlefield where he had become well-nigh invisible to the older eyes of the Army, the Cavalry.

CARE OF THE HORSE'S HOOF.

By Veterinarian WILLIAM P. HILL, Twelfth Cavalry.

THE Army Regulation which prohibits a horseshoer from touching the horse's hoof with a knife ought to be moderated to a considerable extent, as in a great many instances it is essential that the knife be used.

The shod hoof as a general rule does not allow the frog to receive pressure and natural wear, which if present keeps the exfoliations or hang nails worn off, but without this pressure the frog becomes covered with flaps and dead folds, which retain the filth of the stall and roads, holding this putrid matter to the healthy growing under structures, causing decomposition, thrush and breaking down of the frog, with its sequence of wasting and contraction of the heels. It is almost impossible to keep a frog that is a mass of flakes, and fringed with dead horn, clean with a hoof pick, and this is all the farrier or horseshoer is allowed to use in this condition.

I have seen horses' frogs wasting away from the presence of deep seated pus which has been held in the bottom of frog cracks, whereas if these cracks had been thoroughly "bottomed" and cleaned out weeks of veterinary treatment would have been avoided. A frog that has flakes hanging around it cannot be kept in a healthy state. These flakes directly they become detached are "foreign bodies" and ought to be removed, as they act as carriers of filth and keep the air from reaching the frog by their presence.

The *necessary evil* of shoeing tends to gradually contract the hoof; the sole also contracts, which together puts the frog higher up between the heels, so that it becomes a risky proceeding to trim the heels down sufficiently to let the frog touch the ground. In many horses the sole at the heel will bleed before the frog is near the ground. In these case (I mean the high

heeled hoof, upright and *muley*) the frog has no chance to throw off its natural extra growth, and this immediately becomes a *parasite* to the frog if not removed.

I am firmly convinced that by keeping frogs in as pure and healthy a state as possible, so as they will retain their breadth, spread, and elasticity, the contracted heel, navicular disease, and stiff in front cases, that we so constantly see in the Cavalry service, will be to a great extent remedied. I do not advocate that Troop Commanders shall give the ordinary horseshoer *full sway* in the use of the knife, but I feel sure that an intelligent horseshoer could be instructed by the veterinarian what ought to be removed in a typical case of rotten frogs, so that in future cases, that he would run across in his daily shoeing, he would be able to keep the frogs in a proper condition, and not be hampered by the chance of being tried if he uses the knife. A horseshoer with this knowledge, and permission, properly applied would in the course of a month wipe out all thrush in a troop, by getting at the cause; and prevention would be better than cure, which often results in a contracted and wasted frog which takes months to reorganize itself.

Another cause of pinching of the frog, which of course tends to destroy its health and use, is the fourth nail, or the last one, at the quarter heel. This is unnecessary, as three nails on each side is plenty to hold the average shoe on a riding horse. This nail goes into the thinnest part of the wall, just at the place we need to preserve all the expansion we can get. This draws in the heels and bars, interfering with action of the cushion between the tendons and the cartilages, which all combined squeeze the frog into a narrow strip, practically throwing it out of use.

I might mention here the great benefit from a spring invented by a man named Mackey in Baltimore. Only two nails on each side are put in and the spring is then adjusted to give pressure on the inside of the bars. With a strap running around the front of the hoof with a buckle, the horse can be used as before, while this spring will open up the foot one or two inches in a month. This spring has cured many cases of obstinate foot lameness in my practice, and I would like to see the time when they are regularly issued to all troops.

The use of the knife on the sole I know is a very tender subject and from time immemorial we are advised against it, but I have always sympathized with an army horseshoer when I have watched him laboring at a hoof three inches too long with a dull rasp which may have been used on a hundred hoofs before. This in the tropics is a wearisome task and makes the perspiration pour off a man. I cannot see why the horseshoer should not be permitted to cut down some of the sole with a knife. I don't think he will injure one in a thousand by so doing. Do we not carry some precautions to extremes? I presume that the most scientific horseshoers in the world today are the men who shoe trotters on the grand circuit, where proper shoeing means thousands of dollars to the owners. These men use the knife on a frog and sole, but their principal knowledge comes in the balancing of the foot and correcting false action. Of the army horseshoer of the present time, or since the Riley School was inaugurated, I have nothing but the highest praise to give. I have seen some men that do almost perfect work. In my regiment I have several that are really excellent blacksmiths, and these are the men that ought to be given the use of the drawing knife and not be held down by a *cut and dried* holdfast Army Regulation.

NOTES ON THE PROGENITORS OF CERTAIN STRAINS OF THE MODERN AMERICAN HORSE.

By Veterinarian COLEMAN NOCKOLDS, First Cavalry.

AMONG the many subjects which are sure to occupy an important place in the question of Army Reorganization, the supply of suitable horses for military purposes must engage serious attention.

That the scarcity of the type of horses necessary for this purpose is becoming a grave problem, there is no doubt; unless flying machines and other mechanical means of transport supplant, in the near future, the horse in the field.

A system of supplying remounts from government breeding farms, or proper encouragement given to persons that are competent and willing to breed and rear animals that will come up to a standard suitable to the needs of our mounted and draught organizations, and which can be registered and subsidized, should be in vogue.

The object of the following brief monograph is to show that progenitors of the kind of animals needed have existed in this country and their descendants are here at the present time.

Many modifications are apparent, due chiefly to the careless indifference on the part of breeders, which has rendered the great majority of the animals of today worthless from a military standpoint, and of less value for any purpose, than if a judicious system of breeding had been carried out from the earliest times. Nevertheless many strains of horses have been kept almost intact, and it is believed from these, if careful inquiries are made and verified, an ideal animal for military purposes can be obtained.

The stud books and histories of most of the blooded animals have been very carefully made up and most conscientiously kept since the Civil War, and the breeding and accomplishments of good horses are easily found by reference to them.

There is no doubt that during the Revolutionary and Civil Wars many genuine animals were lost sight of, and in the same troublesome times a large number of unworthy beasts were named and accredited faultily with the pedigrees of brilliant performers and true-breds.

The thoroughbreds of America are certainly descendants of the best stock of the mother country, and it is with this breed the bulk of the following remarks have to do.

It is not that the racing thoroughbred of the present time will or can come up to military requirements, for in addition and supplementary to blood there must be substance.

A matter of a hundred years ago, or less, the thoroughbred was a horse of stamina as well as speed, but in these days in the endeavor to obtain faster animals other essentials such as strength and endurance have been in a great measure lost.

For the especial purpose of breeding it is of the utmost importance to be sure of the pedigree, and those horses that have at least some blood in them from horses noted for their staying powers should be chosen.

Speed is a secondary consideration, and for efficient military service it is neccessary that the horse should be able to travel long distances at a fair pace and is a weight carrier. A fair conformation, if the pedigree is right, is more to be depended upon than an excellent one, if there is doubt as to the ancestors of the animal. Blood will tell.

There are no records existing of the native country or period of subjection of the horse, but a very direct, gradual, and unbroken pedigree of the present horse can be traced by following the evolution, from the Cænozoic horse, of the Tertiary period, which is congeneric with the animal of today that have been unearthed with fossils of the mammoth and other extinct animals, in the bone caves of both the old and new worlds; but the genus Equus was not fully established before the close of the Pliocene.

The Eocene division of the Tertiary period shows the two earliest equines and the Eohippus is the oldest known type of the family equidæ. It is described by Marsh as being of the size of a fox, with four toes and a half on each fore foot, and three toes on each hind foot, each encased in a horn forming a hoof; found in New Mexico.

The Miohippus was about the size of a sheep, with odd toes which were hoofed; the Meso-hippus was about the same size, with three toes on each foot and an additional splint bone on each fore foot; these were found in the Miocene strata of North America.

The Pliocene gives us the Plio-hippus as a type; it had three toes, its median foot functional, with a false hoof on each side; about the size of an ass, unearthed in Europe and America, in direct line of descent of the living horse.

From an animal about the size of the fox, the size has steadily increased, and progressive modifications, especially of the limbs, has resulted in the existing horse.

The principal changes that have taken place in the structure of the modern horse, from the animal of prehistoric ages, are enlargement of the middle digit, and hoof of each foot, which alone support the body; the lateral digits are reduced in size and are functionless; the first and fifth digits, and corresponding metapodials are wanting; the second and fourth digits are also wanting, but their metapodials are present, although reduced to mere splint bones; the shaft of the ulna is atrophied, and its extremity is consolidated with the radius; the fibula is rudimentary and ankylosed, with the tibia; the lower jaw is very deep behind, and the bony orbit is complete. Most probably the horse is indigenous to Africa.

The earliest mention made of the horse in the Bible is during the seven year famine, when Joseph received them in exchange for bread, from the Egyptians; horses were also used at his funeral, but up to that time, although asses, men-servants, etc., were given as presents, no mention is made of the horse.

Homer mentions the horse as a beast of burden; the ancient sculptures of Persepolis and Nineveh show him in the same position, and there is nothing to show that he had been ridden up to that time, but it is reasonable to suppose that he had.

From about this time the adoption of the horse, for the purpose of battle, appears to have been very rapid. We find that at the Exodus, generally conceived to have been in the reign of Rameses V, the last of the eighteenth dynasty, or about 1,500 years before the Christian Era, the pursuing army contained six

hundred chosen chariots, and all the chariots of Egypt, and all the horsemen.

When the Israelites returned into Canaan, the horse had already became naturalized in that region so that the Canaanites "went out to fight against Israel, with horses and chariots, very many."

It was over six hundred years later before there were any horses in Arabia, and it seems certain since, while Solomon imported from Arabia, silver, gold, and spices, it was from Egypt only that he procured horses for his cavalry, and that of the allied kings of Phœnicia.

It is probable that horses were introduced into Egypt by the Hycses, those shepherd kings who over-ran and conquered the country, about 2000 B. C.; their rule lasted about 511 years. It is supposed they came from eastern Abyssinia, bordering on upper Egypt; they brought with them a very superior breed of Barba.

There are no extensive tracts of native pastures, or meadow lands in Egypt, as are alone adapted to the existence of the horse, in a state of nature and freedom.

After this Egypt became the principal breeding district and emporium of this animal.

The beautiful Grecian fable, that under the impulse of the trident of Neptune, the most puissant, if not the most potent, of the gods, as an emblem of strength and warfare, the horse sprang from earth, seems intended to adumbrate a belief of the Hellenes, that the animal came from beyond the seas.

However the Thessalians, those aristocrats, who were from first to last the best and most expert horsemen in Greece, as well as the Athenians, from whose sacred soil the horse is said to have sprung, at the summoning of the sea-god, give clearer evidence of the method of his introduction; and they were all colonists from Egypt.

Thus in Europe, on the great fertile plains of Thessaly and Thrace, the boundless reedy meadows on the banks of the Danube, and thence to the illimitable horse pastures of the Ukraine, and to the banks of the Dnieper and the Don, the horse was unquestionably introduced, and propagated as the best and noblest servant of man, and in a state of independent liberty.

In Media and Persia, the horse increased very rapidly, and from a very early date the monarchs of these countries and of Assyria employed countless cavalry, with scythed chariots, as the most efficient and perhaps the most numerous arm of their services.

Among the articles exported during the second century, from Egypt to Arabia, particularly as presents to reigning monarchs, were horses; during the fourth century, two hundred Cappadocian horses were sent by the Roman Emperor, as the most acceptable presents he could offer to a reigning prince of Arabia.

As late as the seventh century, the Arabs had few horses, and those of little value.

When Mahomet attacked the Koreish near Mecca, he had but two horses in his army, this was in the seventh century after Christ; and although he drove off, at the close of his murderous campaign, twenty-four thousand camels, and forty thousand sheep, and carried away twenty-four thousand ounces of silver, there is no mention of horses in the list of plunder.

These circumstances sufficiently prove, that however superior the present breed may be, it is comparatively lately that the horse was naturalized in Arabia.

It appears that the horse was introduced into Arabia, and the adjacent Asiatic countries, from Egypt. From the same stock is derived the whole race of all southwestern Europe.

Egypt not being a favorable country, in any respect, for horse breeding, much less for the original existence of the animal, it is still a sort of mystery how he was first introduced into that country; most probably, he was an original native of the soil of Africa, to which alone his congeners, the zebra and quagga, are indigenous; although the wild ass is of Asiatic origin. Of all the wild races of horses that exist, or did exist in Europe, America, or Asia, it is questionable, as to whether any one is a native of those continents.

The Tartarian breed, which are still found wild in large numbers, from the neighborhood of the Volga, to the barren steppes of upper Asia, and the northern provinces of China, can be clearly traced, to the cavalry horses, employed in the siege of Azof, in 1657, which were turned loose for want of forage, and

have propagated their species with unexampled rapidity; unless it be equaled, by that which has peopled all South America, and all that portion of the States, which has, until recently, been so sparsely populated, in the Southwest as far east as the Mississippi, with the descendants of the first Spanish horses, introduced into the southern continent in 1537.

It is probable that the wild horses of Mexico and Texas are descendants of those horses, that escaped from the expeditions of De Soto, through those regions; and not as some think descended from animals that were liberated at the abandonment of Bueno Ayres, or other animals of the Spanish breed that escaped or were emancipated south of the Isthmus.

The likelihood of an animal like the horse, leaving known pastures, to wander through almost unimpenetrable jungles, brake entanglements, and the rough country, found on the dark and dangerous bridge between the two continents, to seek unknown habitations, is small indeed.

Equine fossils have been found in plenty on this continent, indicating the existence of the horse, here before its discovery by Europeans; but it seems to be indisputable that the horse was extinct before their arrival, as they were not seen by the early navigators, or colonists that came to America.

The wild horse of America is of undoubted Spanish origin; and to this day marked by many of the characteristics of that race, which are shown by the fineness of the limbs, and the peculiar formation of the head, and other attributes of the Moorish and Barbary blood.

Wild horses still roam untamed, far to the southward of the Great Sahara Desert in Africa. From that district there extends a range of fertile, well watered, grassy, and in part wooded country, and it is probable that horses were first introduced into Europe, Arabia, Egypt and the East from this neighborhood.

Fossils of the horse, of extreme antiquity, have been discovered, in some of the oldest formations in Great Britain.

It is the opinion of some authorities that horses existed there before people, as in the Kirdale Cave in Yorkshire, as well as other bone caves, fossils of the horse, elephant, bison, rhi-

noceros, ox, deer, tiger, hyena, and other beasts of prey, were found, but no human remains.

It certainly cannot be regarded as proof that the English horse, in any part of his blood, is autochonous, or aboriginal, because such fossils are found there, any more than it is so regarded of the wild horse of the American pampas or prairies.

A large portion of the forces that resisted the Romans, upon their first invasion of Great Britain, were composed of charioteers and horsemen, so it is evident that horses were domesticated there before that time. When Cassivellaunus discharged his tumultuous army, as unable to resist the legions of the field, he retained a picked body of four thousand war chariots to impede the movements and cut up the foragers of Cæsar.

With the exception of visits to the channel Islands, by the Phœnicians in search of tin, the first entry of the Britons, to the civilized world, was through the Romans. If horses were not introduced by these early visitors, there is some reason to believe that the horse may be indigenous to Great Britain. The discovery of fossilized remains, and the fact that there were plenty there at the time of the Roman invasion, points to this speculation.

Throughout the oriental world, cavalry, with the addition of chariots, immediately became as decidedly the first arm of all services as it was at a later date, in the days of chivalry and until cuirass and lance, and all the gorgeous paraphernalia of knightly warfare, went down to rise no more, before the rolling volleys of the Spanish at Pavia.

In Europe, however, with few exceptions, the use of the horse in warfare was slowly, and never, it may be said, until ages had elapsed, generally adopted.

At the battle of Marathon, 490 B. C., the allies had no horses whatever; and at Platæa, although the Greeks had a combined force of 110,000 men in the field, they had not a single squadron in their army, even to protect their convoys; in consequence of which they suffered severely, and were in danger of being ridden down, by the desperate charges of myriads of Persian horse.

The Spartans, the Athenians, and Thebans, even when at the

height of their military greatness, had but inferior and slender cavalry.

It is rather remarkable that at this period, the horse was in the highest favor and repute with the Greeks and that no pains or expense were spared to improve his breed, to arrive at perfection in speed, endurance, and condition; and that chariot racing stood the highest in point of honor of all the contests of Olympic games.

It was nearly two centuries before the battle of Platæa, that horse racing was introduced among the Greeks.

The extent to which horse racing was carried, even in those days, can be imagined, by one man (Alcibiades the Athenian) sending no less than seven four-horse chariots to the Olympic games, at one time, three of which obtained prizes.

The horse breeding among the noble youths of Athens brought many of them to ruin, and rank in the army was given those that furnished their own chargers.

The Bœotians excelled more with their cavalry than the other pure Greek states, because of possessing more level land.

It was no doubt due to the rocky nature of their country, that there were no cavalry among the Israelites, and that the ass was the saddle animal of their princes, and prophets, and the beast on which the Saviour entered Jerusalem. Mr. Winter, in his work on the horse, makes the remarks, that on the occasion of the Saviour's triumphal entry into Jerusalem, "meekly riding on an ass," that the word humility is an error, on the part of the divines and at variance with the ancient and present usages of the inhabitants of the Holy Land, as asses were more highly prized in the Holy Land than horses, and people of the first quality rode on them.

The Jair of Gilead, with his thirty sons, who commanded thirty cities, rode as many asses.

Xenophon, who commanded the retreat of the ten thousand, was no less famous as a horseman than he was as a soldier and a statesman, and his directions for the armament and equipment of a trooper show that the cavalry of Greece must have been well drilled, and formidably accoutered for active service, but they were small in numbers, and inferior in battle, even so late as the early Persian and during the Peloponnesian wars.

The Macedonians, whose kings were of the old heroic stock of Hellas, came into the shock of battle, mounted upon horses bred upon the plains, between the archipelago and the Danube, and soon showed the use of cavalry in warfare, and it at once became a part of armies; often from this time it was the arm that turned the scale of victory.

In all of Alexander's battles, he himself charged at the head of his splendid cavalry, and Philopœmen, the general of the Achæan league, was the best cavalry officer of the world, the Murat of his day.

Pyrrhus of Epirus relied much on his barded cuirassiers, in his wars against the Romans, who never, to the end of their wonderful history of universal conquest, did anything with cavalry at all, until they had Spanish, Nubian, Gallic, and German troopers in their army.

The only way the Romans could make headway against the later Phillip of Macedon, and his son Perseus, about 200 B. C., who had very superior horses in their cavalry, was by the assistance of their Aetolean and Acarnanian allies. The blood of the Greek horses of that day, coming from the extreme east of Europe, being incomparably superior to those of the west, which probably had received no further admixture of the oriental strain, since their first importation, and through constant inbreeding, had become deteriorated. This was markedly shown, when they were opposed to the Numidian barbs of Hannibal, only to be swept away like dust before the whirlwind.

The characteristics and conformation of the ancient horse can be judged, to a more or less accurate degree, from their appearance in the various sculptures yet extant of this animal, both in harness and mounted, from the elaborate and admirable directions given by Xenophon, for purchasing, according to the exterior points.

In the sculptures disinterred by Sir Austin Layard, from the ruins of Nineveh, the horse figures continually in almost every attitude and pace, both military and civil; but in most instances he is represented as an animal of draught, harnessed, singly, double, or four abreast, to chariots, which he is often drawing at a tearing gallop, but rarely carrying a rider on his back.

He is represented in all these sculptures, as a remarkably high crested, large headed, heavy shouldered animal, rather long bodied, powerfully limbed and a heavy, thick, shaggy mane and tail, frequently plaited into regular and fanciful braids. Often his mane and tail are ornamented to correspond with the hair and beard of his driver. This would show that he had nothing of the modern Arab in his form or appearance.

The Elgin marbles, which are the finest existing productions of sculpture, brought from Athens, by the Earl of Elgin, between 1801 and 1803, and preserved in the British Museum, were executed under the direction of Phidias, about 440 B. C. They show the attitudes and action of the cavalry, and the seats of cavaliers, and the highborn hippius of that day. The horses are represented, some at a regular and perfect canter, with their hind legs well under them, others going disunited, the riders sitting on their animals with a pose of perfect balance, ease, aplomb and grace, their hands entirely independent of their seat.

These sculptures seem to show that the Greek horse was not more than fourteen and a half hands high, and built on the order of the Galloway or Cob, and not of the graceful build of the Barb, Arab or Thoroughbred. They are shown as having short, rigid, stocky shapes and are all what might be called "Cock-thrappled," a fault in formation, which renders it impossible for the animal to bring his chin to his chest, when reined back, and with hogged manes, short, closely ribbed, round barrels, heavy joints, short, stiff pasterns, and high upright hoofs. They look like large Galloways, which they very likely were.

The advice given by Xenophon about the horse must be of an animal very much resembling those seen in sculptures of the Phidian school, and seem to do away with the idea advanced by those who insinuate that the horses of the Elgin marbles, like those of the lions of Rubens, are poetical or artistical fictions.

It was about 400 B. C. that Xenophon expressed, in writing, very much the same opinions on the conformation of the horse as are held by horsemen and veterinary surgeons today.

The following remarks by him are probably of more interest to students of veterinary matters, and horsemen, than to the hippologist, except to give an idea of the type of animal that existed at that time.

He begins with the advice: "That one may be deceived the least in the purchase of an unbroken horse, by carefully noting the bodily construction; since if he has never been backed, he will afford no very clear evidence of his spirit. Of his body, it is first necessary to examine his feet; for it matters not how fine the superstructure, if there be not sufficient foundations, there is no utility—if he have all other points perfect, but be badly footed.

"It is befitting first to look at the horny portion of the hoofs, for those horses that have the horn thick are far superior in feet to those that have it thin.

"Nor will it be well if one fail, next to observe whether the hoofs be upright, both before and behind, or low and flat to the ground; for high hoofs keep the frog at a distance from the earth, while the flat tread with equal pressure on the soft and hard parts of the feet, as is the case with bandy-legged men.

"Having begun from below, let us ascend to the other parts of the body. It is needful, then, that the parts above the hoofs and below the fetlocks, be not too erect, like those of the goat; for legs of this kind, being stiff and inflexible, are apt to jar the rider, and are more liable to inflammation. The bones must not, however, be too low and springy, for in that case the fetlocks are liable to be abraded and wounded, if the horse be galloped over clods or stones. The bones of the shanks should be thick, for these are the columns which support the body; but they should not have the veins and flesh thick, likewise.

"For, if they have, when the horse shall be galloped in difficult ground, they will necessarily be filled with blood, and will become varicose, so that the shanks will be thickened, and the skin be distended and relaxed from the bone; and, when this is the case, it often follows that the back sinew gives way and renders the horse lame. But if the horse, when in action, bends his knees flexibly at a walk, you may judge that he will have his legs flexible when in full career; for all horses as they increase in years, increase in the flexibility of the knee. And flexible goers are esteemed highly, and with justice; for such horses are much less liable to blunder or stumble than those which have rigid, unbending joints.

"But if the arms, below the shoulder blades, be thick and muscular, they appear stronger and handsomer, as is the case also with a man. The breast also should be broad, as well for beauty as for strength, and because it causes a handsomer action of the forelegs, which do not then interfere, but are carried wide apart.

"And again, the neck ought not to be set on, like that of a bear, horizontally from the chest; but, like that of a gamecock, should be upright towards the crest, and slack toward the flexure; and the head being long, should have a small and narrow jaw-bone, so that the neck shall be in front of the rider, and the eye shall look down at what is before the feet. A horse thus made will be least likely to run violently away, even if he be very high-spirited, for horses do not attempt to run away by bringing in, but by thrusting out their necks.

"It is also very necessary to observe whether the mouth be fine or hard on both sides, or on one of the other. For horses, which have not both jaws equally sensitive, are likely to be hard mouthed on one side or the other. It is better that a horse should have prominent than hollow eyes, for such a one will see to a greater distance. And widely opened nostrils are far better for respiration than narrow, and they give the horse a fiercer aspect; for when one stallion is enraged against another, or if he become angry while being ridden, he expands his nostrils to their full width.

"The loftier the crest, and the smaller the ears, the more horse-like and handsomer the head is rendered; while lofty withers give the rider a surer seat, and produce a firmer adhesion between the body and shoulders. A double loin is also softer to sit upon and pleasanter to look upon, than if it be single; and a deep side, rounded toward the belly, renders the horse easier to sit, and stronger, and most easy to be kept in condition; and the shorter and broader the loin, the more easily will the horse raise his fore-quarters, and collect his hind-quarters under him, in going. These points, moreover, cause the belly to appear the smaller; which, if it be large, at once injures the appearance of the animal and renders him weaker, and less manageable.

"The quarters should be broad and fleshy, in order to correspond with the sides and chest, and should be entirely firm and

solid, they will be lighter in the gallop, and the horse would be speedier. But if he should have his buttocks separated under the tail by a broad line, he will bring his hind legs under him, with a wider space between them; and so doing he will have a stronger gait and action, and will in all respects be better on them. A proof of which is to be had in men, who, when they desire to raise anything from the ground, attempt it by straddling their legs, not by bringing them close together.

"Stallions should not have their testes large, and this ought not to be overlooked in foals.

"To conclude, in regard to the lower joints, of the shanks, and the fetlocks and the hoofs, behind, I have the same remarks to make, and no others, than those which I have made above."

From the foregoing, it is evident that the good points of a horse, in those early times, were much the same as are considered good now; it described a short, round barreled, stocky, active beast, well upon his legs, with his hocks fairly under him, with a lofty crest and somewhat heavy forehand, though high withers are insisted on. It describes the horse of the Elgin marbles, something resembling the improved English roadster of a century ago, an animal framed for strength and hardiness, but wholly destitute of blood, stride, or speed. It is very evident that there was little or nothing of blood, or affinity to the Arab and Barb, as they now exist, in the Greek horse of that period.

The Roman horse, and the art of using him, was even inferior to the Greek. In the early ages of the republic, the cavalry of the Roman armies was composed of youths of the monetary aristocracy, who served on horseback partially at their own expense, enjoying in consequence certain privileges, and exemptions, and a positive rank in the state, second only to the patrician senators and holders of senatorial offices.

Romulus instituted three centuries of youths, when he called "celeres," who acted as a mounted body guard. This number was increased to eighteen hundred, by the Servian constitutions at the end of the monarchy; all these men were of a wealthy class; they were bound to serve mounted, at their own expense, when the exigencies of the public service did not allow a horse

to be furnished for them; later, every person in the possession of 40,000 asses* was liable to do cavalry service.

This plan was rather absurd as these troopers were not regularly drilled or required to practice either horsemanship or the use of arms. The Romans were in no respect an equestrian people, and the native breed of their horses was of no excellence. In no case had the Roman consular army, which consisted of two legions, of four thousand two hundred infantry each, above six hundred horse; being three times as many infantry to one mounted man, as the famous divisions of Napoleon had.

So long as the Romans were engaged in Italian wars, they were able to contend with them on equal, if not superior terms, as regards their cavalry arms in the field, although the Romans were numerically inferior to their adversaries, showing that the Italians were as bad as regards their mounted service as were the Romans, but the superior vigor of the Roman man, whether on foot or horseback, prevailed.

The moment they were brought into contact with foreign cavalry, Macedonic and Thessalian (Turkish) horses, under Pyrrhus, and, yet more distinctly, with Numidian horses, undoubtedly pure Barbs, under Hannibal, the inferiority of the Italians in everything pertaining to equestrianism was demonstrated.

Cæsar, during his wonderful career of Gallic victories, had no Roman horse in his service, but relied wholly upon the cavalry of the friendly Gaulish tribes for that arm. Once when doubtful of the faith of his auxiliaries, he mounted his infantry on Gallic horses.

In his conflict with Pompey, his horsemen, who were unquestionably Gauls, rode through the highborn Roman horse, as did the British cavalry at Balaclava through the Russian dragoons, as if they were lines of pasteboard.

Crassus in Asia was totally defeated and destroyed by the oriental horse of Parthia; Valerian, Julian, and other Roman Emperors or chiefs, who attempted to contest the palm of victory with Italian or western cavalry against the innumerable clouds of oriental horse, met a like fate. It was not until they were

*A copper coin the unit of the early monetary system of Rome. It was originally of the weight of one pound—twelve ounces.

outdone by the superior offspring of their own blood, bred on British and American soil, by the aid of western enterprise and lights of western science, that the oriental horse lost their superiority.

Although the Italians, during this period, were inferior as regards their horsemanship and horses, it is to them, in great measure, that a continual improvement in the breed of horses was maintained. Their constant habit of guarding and garrisoning one conquered province, by the contingents raised from another, and their very deficiency of indigenous horses, leading to the employment of the best equestrian nations of their subjects or allies, brought about a constant rotation of breeds, and strains of blood, in all the provinces, an advantage which Italy itself did not share, and consequently an admixture of the native with the best imported animals. All the Barbaric tribes rode perfect stallions, and that these were brought into constant familiarity with the native mares, there is no doubt.

The excellence of the Spanish, and especially of the Andalusian blood, is generally ascribed to the Arabic invasion of Tarik in 710. No doubt great benefit resulted from the strain of horses brought with those invaders, but the Spanish horse likely derived his earliest excellence, from horses brought by the Carthaginian family of Barca, who ruled almost as indigenous sovereigns, over all the Mediterranean and Atlantic shores of Spain, from Carthagena to Cadiz, at the head of powerful African armies, accompanied by numerous forces of the Numidian cavalry, mounted on the desert Barbs of the nomadic Moors and Arabs.

It is hardly probable that these animals were allowed to exist, among a warlike and equestrian people, without their seeking to improve their horses by the admixture of foreign blood, the superiority of which they could not fail to perceive.

This doubtless was the first cross of oriental blood upon the Spanish stock. The same cross must also have taken place, though in a smaller degree, among the Gaulish horse herds, during the six months occupied by Hannibal's march through their country from the Pyrenees to the Rhone, at the head of eight thousand African Barbs, principally, if not all, stallions.

It would be about the time when this engrafted blood might be supposed to be in a process of deterioration, in consequence of inbreeding, and perhaps of intentional vitiation by the introduction of Flemmish sires, for the begetting of animals capable of bearing men-at-arms of the chivalric ages in their ponderous panoply, that Tarik with his hordes of desert horse arrived, and thus the depreciated race was reinvigorated.

From the first of those intermixtures, as well as from the horses of the Thracian and German troopers, quartered on them by the Roman emperors, the British horses of the old stock, as found by the Romans under Cassivelan and Caradoc, directly received their first improvement. Indirectly they were improved by the second Spanish cross, introduced largely for breeding purposes by the Saxon and Norman monarchs from the southern kingdom.

Of the actual Spanish horse, of the days of the conquest of South America, when the Spanish horse was at his greatest purity and perfection, comes the wild stock of the South American pampas, and probably of the southern and southwestern prairies of the United States; and from this, to a certain degree, it is likely that the domesticated stock of some of the southern States has received a remote cross of Andalusian blood.

In Louisiana, that cross was obtained and still exists, in a more direct form; although the blood does not appear to be distinguishable, to any considerable extent, in the external characteristics of the animal.

(*To be continued.*)

ENDURANCE RACES.*

By Brigadier General EARL D. THOMAS, U. S. Army.

As a preliminary warning as to the matter to be found in the following pages, and what is to be expected if curiosity is aroused thereto, extracts from the *New York Sun* and *Chicago Record-Herald* are here inserted.

New York Sun.

"The people of Big Horn County (Wyo.) have arranged for their fall fair a fifty mile saddle-horse ride which will be watched with interest everywhere among lovers of equine matches.

"The test under the conditions prescribed, if made successfully, will demonstrate conclusively the much vaunted stamina of the Western horse. The War Department has selected General Earl D. Thomas as its representative to be present and determine the conditions and merits involved in the test and its relations to the cavalry branch of the service. It is an important matter."

Chicago Record-Herald.

"The Western horse has long borne the reputation of being capable of great endurance under strenuous conditions. A trial test of his mettle will be made at the Big Horn County (Wyo.) Fair which will be of great interest to equine admirers generally.

"The journey prescribed in the test will cover fifty miles—under saddle, over a rough country, governed by capable horsemanship and humane conditions. General Earl D. Thomas, representing the War Department, will be present to determine the genuineness of the test, and its bearing upon the cavalry branch of the military service of the Nation."

*This article is made up of extracts from an extended, and well illustrated, by numerous photographs, report not only of the endurance races and of the horses found in the Big Horn country but also of the country in general as a suitable location for breeding horses for the army.

Horse-breeding takes rank as one of the first industries in the United States. The 19,746,583 horses in this country have a commercial value of $1,846,578,212, outranking in valuation any other branch of animal industry.

Farmers are compelled to raise horses for agricultural uses. Draft bred horses are usually the most profitable to produce by the average farmer.

THE writer was delegated by the War Department to witness the "Long Distance Races," or "Endurance Tests," of native Wyoming horses that were to take place in connection with and as an adjunct and drawing card to the "Big Horn County Fair" which was to be held at Basin, Wyoming, from the 16th to the 20th of September, 1907. Was also instructed to make a report upon the kind of horses in Wyoming and those suitable for cavalry and artillery services, for the future information of the War Department.

The task of witnessing the races was easy, and more or less instructive and interesting from several points of view;—inasmuch as this was the first instance in his career as a cavalry officer extending over some years, that he had been called upon to note the struggle between well bred horses over a long distance course, managed by competent riders who were enthusiastic *devotees* of the *sport*, and who were also confident of being the *victor* at any and all odds.

My visit to Basin, thoroughly enjoyable, resulted in finding many good horses in that locality, principally of the numerous draft breeds now so common in our domain, with conformation and action that would answer for the artillery and do good service therein and unquestionably be quite satisfactory in all respects to our critical light battery commanders in the United States, provided of course the horses were wisely selected in the first instance.

As changes had undoubtedly taken place in the settlement and development of Wyoming in the vicinity of the Shoshone and Big Horn Mountains, since serving there as a cavalry subaltern in the '70s, it was not quite definitely known just where and in

what part of Wyoming Basin was situated. It was found that the Burlington was the only railroad penetrating the Big Horn Basin and further information was vouchsafed to us that the gateway to the Big Horn Basin is Toluca, Mont., on the Billings line of the Burlington Route.

Colonel A. L. Patrick, an old time frontiersman and a typical westerner, moreover a noted hunter of large "game," met us at Sheridan station, Wyoming, at which place we were scheduled to stop for a short time, as the fair at Basin was not to open until the 16th and the day of arrival at Sheridan was the 11th. We were on the Burlington Route. The usual result:—Not on time, but plenty of time; time or on time was of no consequence.

The Patrick Ranch, known as the "P K" ranch, is one of, if not the finest and best appointed ranches that I have seen in Wyoming and is to my mind especially adapted to the breeding, raising and developing of horses in all of its uncertainties, ramifications and, it might be added, some bitter disappointments, as any one cognizant of such a fact will surely state, who has attempted to breed, even on a small scale, high priced coachers, trotters or running-bred animals.

However, I have not visited all the horse breeding enterprises in Wyoming, therefore cannot speak with positive assurance, that this is the best. The "Embar" ranch, near Thermopolis, has been a noted and famed horse breeding establishment for decades, and may be, in so far as I know, equally as well appointed if not better than this one. In the production of high class horses I am certain just now the laurels rest with and rightfully belong to the "Embar" ranch, the "P K" ranch being devoted more especially to cattle production, grazing, feeding and winter keeping of cloven hoofed animals.

The three-days' stay at the Patrick Ranch was an outing not soon forgotten. The generous hospitality there shown us was very much appreciated and carefully noted. Besides, a ride over the adjacent country which was the scene of many a fierce jaunt in the '70s after the Sioux by Crook's armed battalions, admirably assisted by *Stanton's irregulars* which the Sitting Bull campaign of '76 developed and hardened for service against the "Wards of the Nation" on their annual scalping journeys to the unprotected frontier settlements. Happily such forays are things

of the past and our former "mustard" colored warriors are relegated to the humdrum existence of a farmer's life.

Traveling and hunting as we did, along the Little and Big Goose Creeks, Soldier and Wolf Creeks, recalled to mind many thrilling incidents of periodical raids made by the Dakotas, Ogallala and Brulé Sioux through this part of Wyoming in the early '70s, when the desert had not yet lost its terrors, when painted warriors camped on the trail of the emigrant and freighter, and when the "Wild West" was something more than a figure of speech. Moreover, we recalled the rapid and stealthy march through this part of the then Territory of Wyoming, from the Rosebud south to old Fort Fetterman made by Sibley and his small command in '76 which unquestionably saved them from annihilation at the hands of the Sitting Bull band.

As Colonel Patrick is "Lord of the Manor" at Soldier Creek and has under his immediate control 10,000 acres of arable and cultivated land, it can be readily imagined that over this property the grouse shooting would be, and was, of the finest. The dogs were of the best strains, thoroughly broken, and with the active, agile proprietor holding the ribbons over a steady going, well broken, kindly disposed pair of native "Cobs," added to our comfort, as he at opportune times invited us to ride, which act of politeness we were duly thankful for, as a short-legged cavalryman can, or is supposed to ride, but is not built for "hoofing" it, and studiously avoids "endurance races" on foot. To see the "Colonel" sedately guiding his pair over the wheat and alfalfa fields one could hardly realize for a moment that he at one time in the early history of Nebraska and Wyoming was one of the most noted four-in-hand drivers in the Middle West.

The railroad from Toluca into the Basin branches at Frannie, Wyoming, 87 miles from Toluca, one line running 42 miles to Cody on the upper Shoshone river. The other line runs 91 miles through Basin, county seat of Big Horn County, to Worland on the upper Big Horn River.

The Shoshone Indian reservation lies immediately south of the Big Horn Basin, and comprises more than 1,000,000 acres of land now open to homestead settlement. It is estimated that approximately 300,000 acres is first-class farming land, susceptible of irrigation, the remainder being grass, timber and mineral

lands. Arid and semi-arid lands no longer present serious obstacles to the homeseeker. Under the Campbell system of dry farming nearly all lands of Wyoming between Toluca and the Big Horn Basin, the Shoshone River valley, Cody, and the Big Horn valley, and others can be made to yield without irrigation more than the average lands east of the Mississippi. Ten and fifteen years ago the sole occupants of these valleys were long horned cows and steers. Today, as will be observed by travelers, sightseers, and land-seekers, these valleys are fringed with settlers' cabins and homesteads marked with comfortable dwellings. The ranches are mostly fenced and present every evidence that paying crops of alfalfa, wheat and oats have rewarded the labors of the pioneer settlers and homeseekers.

At first it was the cattle "barons," then the horse enterprises. The cattle and horse men gave way to the miners for a time. The sheep men began to crowd the miners a few years ago; now they in time must widen the circle to make room for a new recruit—the millionaire of the beet fields. The time is gone when the privilege to lead the simple life was considered the best your farmer friend deserved. We shall probably be hearing him talk about nervous prostration and the responsibility that attaches to the care of great wealth. He was a long time getting around to it, but his day has come at last.

The enterprising and progressive citizens of Basin are entitled to great credit for street and building decorations and electric lighting of the avenues, besides a display of generous hospitality and courteous treatment to their visiting neighbors and guests, Fair Week. It was quite a revelation to an outsider to see such a tasteful and artistic display, causing much labor and some considerable expense, in a town not many years old.

Another unique attraction—something out of the ordinary, which was decidedly pleasing and an interesting feature of the exhibition, was the young "Lady Rough Riders." Mounted upon cow ponies and broncos—the latter of doubtful reputation—cowboy saddles, all in subdued uniform and riding astride, cowboy style; in short, doing stunts and giving exhibitions every day of fearless riding and horsemanship that would cause the modern cowboy and range rider to turn green with envy—all uniforms, horses and equipments furnished by themselves. It was unani-

mously conceded by all visitors that a very creditable showing was made in all of their parades and escorting features.

The opening of the Big Horn County Fair meeting at Basin, Wyoming, in the Big Horn Basin, scheduled for September 16th to 19th, 1907, was on time. The farmers, grangers, horse owners and cattle barons, with their wives and daughters, were there. Also the younger male element with their sweethearts and a cousin or two, all wild with excitement. A feverish enthusiasm prevailed among all classes; most emphatically so when the sweet-tempered, charming bunch of young ladies designated by the Fair management and frequently referred to in these notes as "Lady Rough Riders," passed in review and headed the procession towards the Fair Grounds on the bright, breezy September morning of the year 1907.

This Fair at Basin, Wyoming, was not organized as a money making proposition for any individual or set of individuals, but, firstly and lastly, to give publicity to Basin as a live city with many attractions; to draw attention to the Big Horn country as a fine locality where horses and other stock can be reared and developed in large numbers and of excellent qualities, which locality would in a short time produce horses that would be a source of supply to the mounted branch of the United States Army, and from where we could from time to time draw horses for our wants that we can not obtain in sufficient numbers in other States adjacent to the Mississippi Valley.

Mounts for the above use, and service in this country and in our colonial possessions, must be purchased from breeders and dealers. Our country does not, like foreign countries, maintain breeding establishments. While it is and has been generous in aiding enterprises that were built and managed primarily for private profit, the Government policy towards horse and stock breeders has been less admirable. Too often it has been stingy when it might profitably have been open handed, and bounteous when it might profitably have been niggardly.

The "endurance tests" to be held there as one of the attractions, were, early in the season, advertised with great vigor and intelligence. These advertisements appeared in all of the daily and weekly papers not only in Wyoming, but in other western

and middle states. Extensively exploited in a manner and ways only known to the "Associated Press Agents" or by a "Past-master" in the art of skillful manipulation of the information bureaus, these statements and columns of free reading were spread broadcast all over the middle west, extending as far east as the Atlantic seaboard—even drawing the attention of the Adjutant General of the Army, who is deeply interested in the sources of "horse supply" for the Army, and the efficiency of the mounted corps of that small force.

Valuable results, however, are certain to result. The more speed and endurance "tests" the better, beneficial and helpful to all who take special interest in our "trade."

These endurance tests are not uncommon in foreign armies, especially in Europe, where frequent tests of certain breeds are made to demonstrate their superiority in enduring qualities over other breeds. Lieutenant Bassor, a cavalry officer of the Russian Army, holds the record at present. Mounted on a well-bred horse of the Orloff strain (quite common in Russia and founded by Count Orloff, a Russian nobleman), in an experimental ride from Manchuria to St. Petersburg, 6,767 miles. This distance was covered in eight months and three days without serious mishap to man or "beast."

"Endurance Horse Tests in Wyoming."

The endurance horse tests at the Big Horn Basin fair held at the Town of Basin, September 16, 17, 18, 19 and 20, 1907, were of three classes, as follows:

A 25-mile one horse buggy test on September 18;

A 50-mile two horse buggy test on September 21;

A saddle horse test to a finish on the same day.

In the first of the above tests there were two contestants; in the second, only one team; and in the third three saddle horses, all belonging to the same owner.

A committee was appointed previous to the trials to lay out the course on the roughest ground that could be found. No one of the contestants was to ride over the course till the day of the endurance tests.

THE 25-MILE ONE HORSE BUGGY TEST.

Entries.

Dr. G. W. Black, of Basin, Wyoming, entered a grey gelding named Ben, branded *EZ* on the left shoulder, standing 15-3 hands high, eight years old; he was bred by Mr. John Allen on Shell Creek in the Big Horn Basin country and was kept for a stallion until four years old. His sire was a pedigreed Mambrino Patchen stallion and his dam was a half breed Hambletonian mare.

Mr. George S. Mead, of Basin, Wyoming, entered a bay gelding, named Comet, branded 61 on the left thigh, standing 15-1 hands high, six years old; he was bred by the owner. His sire was a Hambletonian stallion and his dam was a good native mare.

Weights.

Dr. Black's horse, Ben, weighed 1,155 pounds; the buggy and harness 355 pounds; and Dr. Black 145 pounds.

Mr. Mead's horse, Comet, weighed 1,000 pounds; the buggy and harness 410 pounds; and Mr. Mead 165 pounds.

The Test.

Dr. Black started at 2:45 p. m., and returned at 4:38 p. m., making the distance of twenty-five miles in 1:53. Horse in fair condition upon return. Blowing some; heart above normal; and very legweary.

Dr. Black thought that he was to start at an earlier hour and in anticipation of doing so warmed his horse up by a drive of several miles; upon learning that the test would not start until the time it did, he kept on driving his horse, and had probably driven him at the time of the start ten or fifteen miles.

The horse showed several whip marks upon his return. These marks were upon the right side, a handy spot at least to touch, by a driver swinging a whip from the right hand; blood was drawn in one or two places, evidently showing that the horse had received some quite severe whip cuts and consequent punishment during his somewhat rapid and tiresome journey.

Mr. George S. Mead started at 3:27 p. m. Returned at 5:36 p. m., the time of the drive being two hours and eleven minutes.

Comet was in good condition and not in any way distressed; he did not show any whip marks. Evidently he could have traveled much farther without injury.

Both horses were driven the entire distance without receiving any water or care of any kind—simply driven from start to finish.

Condition of the Horses Subsequent to the Test.

Both horses were fed and watered in the ordinary course subsequent to the test and at 9:00 p. m. of the same day were in good condition.

The next morning neither horse showed any inclination to stocking and both horses were driven on the streets of Basin and showed no indications of having been overdriven or in any way abused. Ben did not show any signs of the whip marks previously referred to, at the conclusion of the race.

Neither horse showed any inclination to lameness and had a healthy appearance, their eyes being bright and each on the alert, all showing that they had stood the test remarkably well and were then in condition to renew it. Due in great measure to the bracing atmosphere of that region; furthermore, the wonderful recuperating powers of horses bred and reared in and near the western slopes of the world-famed Big Horn mountains.

Weather.

There was a heavy rain between the test on the 18th and the tests on the 21st. On the 21st the weather was fine. The air was clear and dry, a cool south breeze was blowing about eight miles an hour. There was no barometer available for meteorological observations. Temperature at the start of the endurance test, 9:00 a. m., was 57 degrees Fahr.; at 12.00 m., 60 degrees; 2:30 p. m., 70 degrees, and at the close of the test, 5:00 p. m., 55 degrees.

Course.

The course was laid over an ordinary country road running through a sage brush country along the valley of the Big Horn river. The course which had not been prepared in any way for the tests was crossed in several places by gulches, with small rises between them.

THE 50-MILE TWO-HORSE BUGGY TEST.

Entry.

The only entry was one made by Colonel Jay L. Torrey of a pair of chestnut mares named "Sunrise" and "Lightning," both branded "M-" on the left shoulder and Sunrise 477 on the left thigh, and Lightning 560 on the left thigh. They stood about 15 hands high, were ten years old; both were bred by the owner in the *Big Horn Basin country*. The sire of Sunrise was Prince George, a pedigreed English Hackney stallion, and her dam was a combination driving and saddle mare bred in Kentucky and shipped to this county by the owner. The sire of Lightning was Hamlet the 4th, a pedigreed imported English Hackney stallion, and her dam was a half-breed English Hackney mare, named Benedict, purchased by the owner from Mr. George R. Reed of Port Chester, N. Y.

Weights.

The team was driven by Mr. Nathan N. Hodge, who weighed 170 pounds; the buggy and harness weighed 370 pounds; Sunrise weighed 1,000 pounds and Lightning 960 pounds.

The Test.

Mr. Hodge started at 10:00 a. m., and made the 25-mile drive in two hours and twenty-three minutes. At the expiration of the drive there was an interval of one hour and the team was then driven the twenty-five miles again and made it in two hours and twenty minutes. A short stop was made in each case at the 12½ mile post with the result that the actual driving time for the 50 miles was four hours and twenty-seven minutes.

The team came in at the conclusion of each 25-mile drive making a strong pull on the bit; the whip was in the socket. Neither showed the slightest signs of distress but were both on the alert and were nervous while being unhitched. There was not a whip mark on either one of them.

Condition of the Horses Subsequent to the Test.

The team was hooked up in one hour after the conclusion of the test and were photographed and were driven about the fair grounds and the town. Neither of them showed the slightest in-

dication of having been overdriven or in any way abused. Neither showed any indication of lameness, but their eyes were bright and both on the alert, showing that they had stood the test remarkably well and that they were able and evidently willing to repeat the test. It was quite apparent that the team had not been driven as fast as it might have been.

The Saddle Horse Test to a Finish.

Entries.

Three horses were entered by Colonel Jay L. Torrey, named respectively, *"Pride," "Pappoose"* and *"Highpockets";* they were all branded M- on the left shoulder and Pride was branded L 46, Pappoose 438 and Highpockets lazy 77 on the left thigh. Pride stands scant 15 hands high; Pappoose 14.2, and Highpockets 15.1; the first was 6 years old, the second 10 years old, and the third 14 years old; they were all bred by the owner and raised in the Big Horn country.

The sire of Pride was Hamlet the 4th, an imported English Hackney stallion, and her dam was a good native mare; the sire of Pappoose was a Morgan stallion, named Morgan, a direct descendant of Justin Morgan, and her grand sire was the King of *"Hearts"* by the imported thoroughbred stallion, named "King Ban"; her dam and grand dam were good native mares; the sire of Highpockets was the King of Hearts and her dam was a native saddle mare.

Weights.

Pride was ridden by Lieut. J. E. Gavjot, aide to General Thomas; he weighed 140 pounds; his saddle and bridle weighed 20 pounds—a total of 160 pounds. The mare weighed 965 pounds.

Miss Lula Mead, of Basin, rode Pappoose; she weighed 111 pounds and her saddle and bridle weighed 34 pounds—a total of 145 pounds. The mare weighed 930 pounds.

Master Charlie W. Hudson, aged 15 years, rode Highpockets; he weighed 105 pounds and his saddle and bridle weighed 47 pounds—a total of 152 pounds. The mare weighed 985 pounds.

The Test.

The start was made exactly at 9:00 a. m., and the first 25 miles was made in two hours and twenty-two minutes; a rest of thirty minutes was taken and the second 25 miles was ridden in two hours and twenty-six minutes. A one hour rest was taken and the horses started on their third tour of 25 miles.

Lieut. Gaujot, riding Pride, reached the 12½ mile post making the total distance in exactly six hours from the time of starting at 9:00 a. m., but owing to the legweary condition of the horse thought best not to ride farther.

Miss Mead, riding Pappoose, arrived but did not continue for the same reason. (Horse did not finish last 12½ miles, was led in about one hour later, missed finish about four miles.)

The boy, riding Highpockets, returned to the starting point after riding about four or five miles after making the third start, claiming that Highpockets had "humped her back and would not go farther." This mare was in good condition upon her return and showed no signs of distress whatever. She was carefully examined by the writer and should in his judgment have made the trip easily, at least to the 62½ mile post, if proper effort had been exerted by the boy rider. The impression is that he got more fatigued than the mare and was therefore unable to exert himself and returned. The writer examined her as to the whip and spur marks, but did not find any.

The Condition of the Horses Subsequent to the Test.

The three mares were fed and watered in the ordinary course and showed no signs of distress and did not show any signs of punishment either with whip or spur. At 9:00 o'clock p. m. the day of the "test" they were reported as having eaten and drank as usual and as not being lame or in any way out of condition.

The next morning all of these mares were in good condition and apparently fit to repeat the test.

The five head of horses—that is, the two driven in the two-horse buggy and the three ridden—were what would be termed small sized horses. The three latter had been broken and ridden by cowboys from time to time in the ordinary operations incident

to a cattle and range horse business, and the latter had frequently been used as a pack horse.

"Sunrise" and *"Lightning"* were a pair of brood mares which had been broken about twenty days before the race and never had been driven that distance at one time and at the time of starting in the test there was no knowledge as to how they would stand the trip.

No special preparation to condition these horses had been made, but they were simply taken off the range and entered in these tests for the purpose of showing their endurance and what might reasonably be expected of other horses in the Big Horn country under similar circumstances.

The tests were timed by competent judges who were not interested in the horses and had no part in the ownership of any equine in the test.

Faithful judges were at the 12½ mile post to see that all horses turned the post and were carefully timed. They were correctly timed at the 12½ mile stake on arriving each time.

Long-distance rides, as they are called in those countries where they are most frequently made, have not yet been very long in fashion. This branch of sport was made popular only after the War 1870-1877, between military officers of various nationalities, had its inception in 1892—a race between Austro-Hungarian and German officers, under the auspices of the German and Austrian Emperors. The event was decided between Berlin and Vienna, and resulted in a triumph for the Austro-Hungarians. Many horses lost their lives during the race.

There are some stirring stories—all a matter of record and published from time to time—to be told concerning the ponies used upon the "Express" service on the plains in the days before the telegraph had reached the west coast. Perhaps the greatest achievement accomplished was that which brought fame to the name of F. X. Aubry, who in *1851* rode from the Plaza at Santa Fe, N. M., to the Public Square in Independence, Mo., a distance of nearly 800 miles, through a country infested by Indians still on the warpath. It was for a wager of $1,000.00 that he undertook to ride alone from Santa Fe over the "Old Freight Route" to Independence, within six days. Aubrey spared none of his horses, and as a result reached his destination in five days and nineteen

hours. This feat cost him the lives of several of his best horses. After he was carried off his last worn-out horse he became unconscious and remained so for forty-eight hours.

When the "Pony Express" was established just previous to the Civil War, 500 ponies of the tough and tireless "bronco" breed, also Indian and Cayuse varieties, were purchased and 200 men were engaged for the service, eighty of them being chosen as riders. The latter were selected mainly on account of their experience in the saddle, because they had been tested and were able to stand the fatigue of a gallop extending over 100 miles. Good judgment, too, was required, for they had to have the knack of getting as much out of their mounts as possible and not overtax them.

When the pony express was in full swing news was carried from ocean to ocean in less than ten days. In 1860 President James Buchanan's last message was brought into San Francisco in eight days and five hours, while President Lincoln's first address reached the other shore in seven days and fourteen hours.

Colonel W. F. Cody (Buffalo Bill), now living at Cody, Wyoming, hale and hearty, was one of the riders of the pony express and on one occasion, finding that the rider who should have succeeded him had been killed by Indians, rode 384 miles without rest or stop, in twenty-four hours, riding at an average of sixteen mile an hour, and changing horses thirty-six times.

Bob Haslam, known as "Pony Bob," express rider, made a long distance ride from Old Fort Churchill, via the Sink of the Caves, Sand Springs, Cold Springs, to Smith's Fork and return to Fort Churchill on schedule time, making 264 miles.

James Moore, a frontiersman, in the '60s rode 280 miles in twenty-two hours.

In the "endurance tests" or long-distance rides the most important requirement is generally recognized to be the condition of the horse. This rule was applied in 1904 in the Lyon-Vichy ride. In that ride thirty-two horses took part; six of these had to give up. In the Vienna-Berlin ride, out of 199 horses taking part, nine Austrian and eighteen German horses died. In the long-distance ride from Dresden to Leipsig, out of thirty-three taking part not less than ten horses succumbed. In the Brussels-Ostend ride out of the twenty-two horses taking part, two suc-

cumbed on the way and two after arrival. In the Upsala-Stockholm ride, only one rider had to give up, while the remaining twenty arrived safely. This shows that care and attention to the condition of the horse on the long-distance rides is steadily increasing.

Every one knows that it requires no special skill to ride a horse in such a way that he will break down or die. The better bred the horse the more likely is this to happen, as a poor horse will give up long before he is in danger of such an ending. Only a well-bred horse will answer every call his rider may make on him. A good rider is expected to do more than ride his horse. He must nurse his horse and look after him with the greatest amount of thoughtfulness and bring into practice all of his experience and intelligence in the care of his mount. Individual practice alone will teach a man how to cover long distances in as short time as possible without unnecessarily fatiguing his horse. A few failures will impress upon him the fact that a horse is not merely a machine that will go on forever at every pace, provided he is supplied with fuel.

The conditions of the "horses" after the "tests" was especially looked into and personal examinations made in each case at Basin, not only at the close of each test, but the following morning, even up to the second day after the severe trial, as heretofore stated in the report of the "endurance tests," wherein it is found that the horses were in a condition to repeat the test. Noticeably also, there were no crippled animals; no dead ones; furthermore, no cruelty to animals practiced in any case, although the time made was not quite so fast as that made, as stated in some reports of similar "tests," by our military neighbors across the water.

On the whole, however, the Wyoming tests were satisfactory to the owners and onlookers, and demonstrated the fact that Wyoming horses, more particularly those of the Big Horn Basin, have stamina, staying qualities, lung power and strong constitutions, which make them capable of enduring severe and long-continued exertion on the road or over the mountain trails under the saddle. It is not necessary to mention here other inherent attainments. Sure footed—fleet footed—while chasing cows and

wild eyed steers over the divide. Such accomplishments are too well known to require repetition.

Contractors for horses to supply mounts for the Army through the Quartermaster's Department, without much exertion could, it is thought, obtain easily a great number of horses in Wyoming suitable and acceptable for Army service.

There are a number of "stock" ranches in the Big Horn Basin, Wyoming, also in the vicinity of the Owl-Creek Mountains, exclusively devoted to, and managed with the object of, the raising, subsequent development and handling of equine specimens. Having for breeding purposes at those places, superior native matrons and well-bred sires, which, coupled together by an intelligent, watchful breeder, produce a foal that upon reaching maturity is an animal of substance, hardy constitution, and staying qualities the most pronounced. The climate, nutritious native grasses, water, free range and exercise, contributing largely to such development, nearly all being well matured at four years of age, and at that time well adapted to hard work and severe service conditions.

As a rule range horses are rather indifferent walkers; necessarily so from environment and early life on the range and therefore not as perfect campaigners as could be wished for. It will be admitted that they are good gallopers and that at long distances, with their lung capacity, legs and feet of the best, able to stand any amount of hard work and pounding in true cowpuncher style. We have plenty of big horses, useful in their small sphere; we have the fast trotting horse and the thoroughbred racers, but we want another type of horse, suitable to do service in the cavalry.

The introduction of Hackney, Draft and Coach strains, and with such crosses upon our native mares, has produced for commercial and horse show purposes a class of horses of high-stepping, excessive hock action, hard-riding characteristics, that will pound the "liver" out of and upset the internal economy of the ordinary soldier, or anybody else. If this statement is not believed and concurred in, ride any of the "brutes."

Unfortunately some of the above-mentioned kinds have found their way into the cavalry service, much to the chagrin and worry of many "Boards."

To constitute an ideal cavalry horse one of the prime requisites in his makeup is, that he be a flat-footed, four-mile and over an hour walker, or so constituted in disposition and handling qualities that he can be made so by training. Then again he should have a free, square, easy trot, straight and true, no hitching, hobbling or side-stepping, with no tugging at the bit, no false movements or hesitation, but a steady even pull on the mouth, head straight in front of his body, and one that is not concerned in what is on either side of the road.

The establishment of a horse breeding industry in the West may make Wyoming and Colorado competitors of Missouri, that has long held almost a monopoly on the Army horse. The long despised "bronco" may become, if properly bred, one of the best Army horses in the world.

The chief points in which the Wyoming horses excel those that find their way into the cavalry service are, lung power, and harder legs and hoofs. Almost wild horses, that had been ridden only a few times, were brought in from the range and ridden in endurance tests. Although breaking no records, the horses traveled 62½ miles in six hours, or better than ten miles an hour. This rate is very close to the world's record. The most famous rides in endurance tests have been made by French Army officers between Ostend and Brussels, a distance of 85 miles, at the rate of twelve miles an hour. When it is taken into consideration that the horses ridden in these tests had been trained for weeks previous for long distance riding, and had been brought up in the Army service, it will be seen that the wild range horses of the West are as good at long distance riding as any in the world.

Where the Western horse fails is in point of size. There are few "broncos" that come up to the Army regulations in this respect. This is largely due to the fact that they are turned loose on the range when still young colts, and do not get enough feed during their first year. This is the critical time with a horse, and if it does not get enough to eat it will be stunted. By feeding the colts on the range their size will average greater.

As heretofore stated another fault with the "bronco" is that he will not walk. This is a great requisite for an Army horse. The bronco will gallop for miles over the prairie, having far

greater endurance in this respect than the ordinary horse, but is, to say the least, a very poor walker. By breeding the bronco with some of the best trotting strains in the country, an ideal Army horse could be secured. The range life has developed wonderful lung power and hardness in the bronco. What he needs is trotting blood and size. "Ranchers" in the Big Horn Basin, viz: Colonel Jay L. Torrey, Embar Ranch; Messrs. Shipman and Riffil, Basin, and others, have already started this breeding. The result is already observable, as the horses are larger than the natives. The horses of the "Big Horn Basin" were the best seen throughout the Rocky Mountain region.

It is not believed that the Government will establish experimental breeding stations for the Army horse, at least not just yet, leaving this for the States or enterprising citizens. The Colorado Agricultural College, aided by the Government, has already taken up the question of horse breeding, with a distinct western coach horse as the goal. Formerly, any horse that was capable of performing efficiently any task was acceptable to consumers, but now the best grades of horses are demanded in individual and commercial lines. So it is, to a still greater extent, in the cavalry, where the best grades are eagerly sought after but seldom obtained. The reasons are well known: "The keen demand and record prices for horses since 1902 have stimulated the marketing of the surplus horses. The demand has been so urgent that liberal consignments of three-year-old horses have been sent to the markets."

"While horses increased in number in 1905, 1,028,695 head, and gained 3,213,359 head in the United States in five years, the supply of market classes is still below individual and commercial demands. The processes of modern cultivation are so dependent upon the use of horses that they are the formation of national prosperity."

No better or more desirable locality for "breeding" purposes and supplying the shortage now in itself evident, than certain sections of Wyoming, if, of course, proper steps are taken to start the industry in the right manner, the selection of proper stallions to mate with mares now owned and kept by proprietors of breeding farms in that region of Wyoming mentioned in detail at the

close of this article. One of the good things about this State is the elbow room it offers. It inspires a feeling identical with that which old "Jim Bridger" experienced when a new settler located within *forty miles* of his solitary cabin on the Snake river. He complained that the country was getting too crowded and that it was time to move. Some day, however, it will be crowded sure enough.

The "bronco busting" contest at the Fair grounds the last two days of the fair drew large crowds of interested spectators and everybody was so well pleased that steps have already been taken, so it is understood, to make "bronco busting" an annual event in Basin. Something like eight riders were entered in the afternoon contests, some of whom have wide reputations as "bronco busters." It was a splendid exhibition of human nerve and skill against brute strength, and in one or two instances the horse won by a large margin.

What pleases a cowboy, or bronco buster, more than anything else is a tussle with an equine outlaw of the worst type, a dangerous pastime and liability to permanent injury. However, like the "bull fights" in our sister Republic, such "bronco busting" contests will be patronized by all kinds of people.

A "bucker's" mode of attack and resistance is never the same. He may rear and fall over backwards; dash off at break-neck speed and halt with bone-shattering suddenness; spring in the air, drop, rise again and descend with back in the shape of a crescent and legs stiff as steel; roll over with cat-like quickness; or execute a dozen other malignant maneuvers. Win or lose, he returns to the contest with stubbornness unchanged. He will but seldom yield to man's mastery. The "bronco" inherits characteristics of resistance to the subduing and controlling influences and persuasions of man which, in a majority of cases, make it a trifle dangerous to place upon him under service conditions the ordinary cavalry, field and horse artillery soldiers, who are not finished riders and fearless horsemen, like the "bronco busters" and cowboys of the West and South.

CAVALRY IN WAR AND PEACE.*

PREFACE.

ALL British soldiers will welcome this excellent translation by Major Bridges of a new work by General von Bernhardi, whose intimate knowledge of cavalry and brilliant writings have won for him such a great European reputation.

Some prominence has lately been given in England to erroneous views concerning the armament and tactics of cavalry. General von Bernhardi's book contains sound doctrine on this subject, and will show to everyone who has an open mind and is capable of conviction by reasoned argument how great is the future rôle of cavalry, and how determined are the efforts of the great cavalry leaders of Europe to keep abreast with the times, and to absorb, for the profit of the arm, every lesson taught by experience, both in peace and war.

In all theories, whether expounded by so eminent an authority as General von Bernhardi or by others who have not his claims to our attention, there is, of course, a good deal that must remain a matter of opinion, and a question open for free and frank discussion. But I am convinced that some of the reactionary views recently aired in England concerning cavalry will, if accepted and adopted, lead first to the deterioration and then to the collapse of cavalry when next it is called upon to fulfill its mission in war. I therefore recommend not only cavalry officers, but officers of all arms and services, to read and ponder this book, which provides a strengthening tonic for weak minds which may have allowed themselves to be impressed by the dangerous heresies to which I have alluded.

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*This article is made up from the preface and introduction to the English translation of General von Bernhardi's new work under the above title. The preface is by General Sir J. D. P. French, G. C. B., G. C. V. O., K. C. M. G.

Is there such a thing as the cavalry spirit, and should it be our object to develop this spirit, if it exists, to the utmost, or to suppress it? General von Bernhardi thinks that this spirit exists and should be encouraged, and I agree with him. It is not only possible, but necessary, to preach the Army spirit, or, in other words, the close comradeship of all arms in battle, and at the same time to develop the highest qualities and the special attributes of each branch. The particular spirit which we seek to encourage is different for each arm. Were we to seek to endow cavalry with the tenacity and stiffness of infantry, or to take from the mounted arm the mobility and the cult of the offensive which are the breath of its life, we should ruin not only the cavalry, but the Army besides. Those who scoff at the spirit, whether of cavalry, of artillery, or of infantry, are people who have had no practical experience of the actual training of troops in peace, or of the personal leadership in war. Such men are blind guides indeed.

Another reason why I welcome this book is because it supplies a timely answer to schoolmen who see in our South African experiences, some of which they distort and many of which they forget, the acme of all military wisdom. It is always a danger when any single campaign is picked out, at the fancy of some pedagogue, and its lessons recommended as a panacea. It is by study and meditation of the whole of the long history of war, and not by concentration upon single and special phases of it, that we obtain safe guidance to the principles and practices of an art which is as old as the world.

It is not only the campaigns which we and others have fought which deserve reflection, but also the wars which may lie in front of us. General von Bernhardi does not neglect the lessons of past wars, but he gives the best of reasons for thinking that the wars in South Africa and Manchuria have little in common with the conditions of warfare in Europe. We notice, as we read his book, that he has constantly in his mind the enemies whom the German Army must be prepared to meet, their arms, their tactics, and their country, and that he urges his comrades to keep the conditions of probable wars constantly before their eyes.

It passes comprehension that some critics in England should gravely assure us that the war in South Africa should be our chief source of inspiration and guidance, and that it was not abnormal. All wars are abnormal, because there is no such thing as normal war. In applying the lessons of South Africa to the training of cavalry, we should be very foolish if we did not recognize at this late hour that very few of the conditions of South Africa are likely to recur. I will name only a few of them. The composition and tactics of the Boer forces were as dissimilar from those of European armies as possible. Boer commandos made no difficulty about dispersing to the four winds when pressed, and re-uniting again some days or weeks later hundreds of miles from the scene of their last encounter. Such tactics in Europe would lead to the disruption and disbandment of any army that attempted them.

Secondly, the war in South Africa was one for the conquest and annexation of immense districts, and no settlement was open to us except the complete submission of our gallant enemy. A campaign with such a serious object in view is the most difficult that can be confided to an army if the enemy is brave, enterprising, well-armed, numerous, and animated with unconquerable resolve to fight to the bitter end. I am not sure that people in England have ever fully grasped this distinctive feature of our war with the Dutch Republics. Let me quote the opinion of the late Colonel Count Yorck von Wartenburg on this subject. In his remarkable book, "Napoleon as a General," Count Yorck declares that if, in the campaign of 1870-71, the absolute conquest and annexation of France had been desired, German procedure would not have been either logical or successful, and that the Germans would have failed as completely as Napoleon failed in Spain. But Count Yorck shows that when plans have a definite and limited object in view—namely, to obtain peace on given conditions—the situation is altered. Count Yorck shows that the German plans in 1870-71 were perfectly appropriate to this limited aim, and that they were therefore successful. The very serious task which British policy imposed upon British strategy in South Africa must never be forgotten.

Thirdly, we did not possess any means for remounting our cavalry with trained horses, such as we are endeavoring to secure by our new system of cavalry depots and reserve regiments. After the capture, in rear of the army, of the great convoys by De Wet, our horses were on short commons, and consequently lost condition and never completely recovered it.

Lastly, owing to the wholesale and repeated release of prisoners who had been captured and who subsequently appeared again in the field against us, we were called upon to fight, not, as is stated, 86,000 or 87,000 men, but something like double that number or more, with this additional disadvantage, that the enemy possessed on his second or third appearance against us considerable experience of our methods, and a certain additional seasoned fitness.

Nevertheless we are now invited to throw away our cold steel as useless lumber owing to some alleged failures of the cavalry in South Africa. Were we to do so, we should invert the rôle of cavalry, turn it into a defensive arm, and make it a prey to the first foreign cavalry that it meets, for good cavalry can always compel a dismounted force of mounted riflemen to mount and ride away, and when such riflemen are caught on their horses they have power neither of offense nor of defense and are lost. If, in European warfare, such mounted riflemen were to separate and scatter, the enemy would be well pleased, for he could then reconnoiter and report every movement and make his plans in all security. In South Africa the mounted riflemen were the hostile army itself, and when they had dispersed there was nothing left to reconnoiter; but when and where will these conditions recur?

Even in South Africa, grave though were the disadvantages under which our cavalry labored from short commons and overwork, the Boer mounted riflemen acknowledged on many occasions the moral force of the cold steel, and gave way before it. The action at Zand River in May, 1900, was a case in point, and I only quote a personal experience because the venerable maxim that an ounce of practice is worth a ton of theory has still a good deal to be said for it. The rôle of the Cavalry Division on the day to which I refer was to bring pressure to bear on the right flank of the Boer army in order to enable Lord Roberts to ad-

vance across the river and attack the main Boer forces. Having crossed the river to the west of the Boers, we determined, with the inner or easterly brigade, to seize an important kopje lying on the right flank of the Boer position, and, pivoting upon this, to throw two brigades against the right flank and rear of the enemy.

The Boers told off a strong force of picked mounted riflemen to oppose this movement, which they expected. The kopje was seized by the inner brigade, and the brigade next to it made some progress; but the Boer mounted riflemen attacked the flank brigade to the extreme west, and began to drive it back. I galloped from the kopje to the outer brigade with the thought that either every idea which I had ever formed in my life as to the efficacy of shock action against mounted riflemen was utterly erroneous, or that this was the moment to show that it was not. On reaching the outer brigade I ordered it to mount and form for attack. All ranks were at once electrified into extraordinary enthusiasm and energy. The Boers realized what was coming. Their fire became wild, and the bullets began to fly over our heads. Directly the advance began, the Boers hesitated, and many rushed to their horses. We pressed forward with all the very moderate speed of tired horses, whereupon the whole Boer force retired in the utmost confusion and disorder, losing in a quarter of an hour more ground than they had won during three or four hours of fighting. A cavalry which could perform service like this; which held back, against great numerical odds, the Dutch forces at Colesberg; which relieved Kimberley; which directly made possible the victory at Paardeberg by enclosing Kronje in his intrenchments; which captured Bloemfontein, Kroonstadt, and Barberton, and took part successfully in all the phases of the long guerrilla war and in countless drives, can afford to regard with equanimity the attacks of those who have never led, trained, nor understood the arm to which I am proud to have belonged.

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I have already, in an introduction to another book by General von Bernhardi, expressed my high sense of the general soundness of his teaching. Were I to do full justice to the

merits of this new work, I should be compelled to make long extracts and to repeat matter which every reader will perhaps do better to search for and select for himself. But I would invite particular attention to the general's remarks on the subjects of reconnaissance, the cavalry fight, the combination of fire and shock, the divisional cavalry, the rôle of the strategical cavalry, training, and organization. The masterly summary of the qualifications which should be possessed by squadron and patrol leaders is, in particular, an extremely valuable contribution to the study of a most important subject.

The general does not always agree with the Regulations of his own Army, and he is especially in conflict with them when he recommends raids by cavalry corps against the enemy's communications. My opinion upon this point is that every plan should be subordinate to what I consider a primary necessity—namely, the absolute and complete overthrow of the hostile cavalry. So long as that cavalry remains intact with its *moral* unshaken, all our enterprises must of necessity be paralyzed. The successful cavalry fight confers upon the victor the command of ground, just in the same way that successful naval action carries with it command at sea. For effective enterprises in either sphere command is absolutely necessary, and can only be obtained by successful battle, whether on land or sea.

I agree generally with the German Regulations when they suggest that raids against communications should not divert cavalry from their true battle objective, and consequently I must venture to differ from the author on this point, though I do not approve of all that the German Regulations say concerning the employment of cavalry in battle. The opinion which I hold and have often expressed is that *the true rôle of cavalry on the battlefield is to reconnoiter, to deceive, and finally to support.* If the enemy's cavalry has been overthrown, the rôle of reconnaissance will have been rendered easier. In the rôles of deception and support, such an immense and fruitful field of usefulness and enterprise is laid open to a cavalry division which has thought out and practiced these rôles in its peace training and is accustomed to act in large bodies dismounted, that I cannot bring myself to believe that any equivalent for such manifest advan-

tages can be found even in the most successful raid against the enemy's communications by mounted troops.

I entirely agree with General von Bernhardi's conclusion that very important duties will fall to the lot of the divisional cavalry in war, and that the fulfillment of these duties has become more difficult of late years. The necessity for, and the value of, divisional cavalry are often not properly appreciated. What the strategical cavalry is to the Army in the greater sphere, the divisional cavalry is to the division in the lesser.

Most cavalry soldiers of good judgment will agree with the lucid arguments of the author on the subject of cavalry armament. It is suggested to us, by critics of the cavalry, that the lance is an impediment to dismounted action. If this difficulty ever existed, it has been overcome by the method of carrying the lance which has been adopted and practiced with marked success for the past two years. It is also objected by the same critics that a thin bamboo pole, carried by the side of a mounted man, will hinder him in reconnaissance and reveal his position to the enemy. The mere statement of this argument absolves me from the duty of replying to it.

General von Bernhardi very wisely says that it is not a question whether cavalrymen should fight mounted or dismounted, but whether they are prepared and determined to take their share in the decision of an encounter and to employ the whole of their strength and mobility to this end. In our training during the last few years I have endeavored to impress upon all ranks that when the enemy's cavalry is overthrown, our cavalry will find more opportunities of using the rifle than the cold steel, and that dismounted attacks will be more frequent than charges with the *arme blanche*. By no means do I rule out as impossible, or even unlikely, attacks by great bodies of mounted men against other arms on the battlefield. But I believe that such opportunities will occur comparatively rarely, and that undue prominence should not be accorded to them in our peace training, to the detriment of much more solid advantages which may be gained by other means.

I think that everyone who reads this book will understand that the sphere of action of cavalry is steadily widening, and is, at the same time, making increased demands as the years go on

upon all ranks of the arm. Those who wish to recall what cavalry has done in the past should read and re-read "The Achievements of Cavalry," by Field-Marshal Sir Evelyn Wood, one of the very few soldiers in the Army who has taken part as a combatant in European warfare. Sir Evelyn Wood's war record probably surpasses that of any other officer in the Army. His knowledge of horses and his horsemanship are second to none, and though 72 years of age, he is still one of the hardest and straightest riders to hounds in England. It should be a constant encouragement to the cavalry that such an experienced and sagacious leader should entertain such a firm faith in the destinies of an arm, with which he is so thoroughly conversant.

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A few words in conclusion. We hear it said, and see it written, that we ought not to accept any guidance from military Europe, because our own experience of war has been so considerable that we can learn nothing from Europe which we do not know better ourselves. The truth is, that since the Crimean War we have had little or no experience of the kind of effort which will be required of us when next we meet the trained army of a European Power. In deluding ourselves with the false notion that our campaigns of the last fifty years represent the sum of military wisdom, we merely expose our ignorance and conceit, and do our utmost not only to cause disaster, but to invite it.

The cavalry soldier must not be misled by these appeals of ignorance to vanity. Let him continue to study profoundly the training, tactics and organization of the best foreign cavalry. Let him reflect long and deeply upon the opinions of such acknowledged authorities as Field-Marshal Sir Evelyn Wood and General von Bernhardi. Let him keep himself abreast with every change in the tendencies of cavalry abroad, so that he may help us to assimilate the best of foreign customs to our own. Finally, let him realize the great intellectual and physical strain that modern war will impose upon the cavalry, and let him preserve the *mens sana in corpore sano,* that equable balance between study and action, which alone will enable him to rise superior to every difficulty in the great and honorable calling to which he belongs.

J. D. P. FRENCH.

INTRODUCTION.

The great changes which have taken place in military science since the year 1866 have forced all arms to adopt new methods of fighting. It was, first and foremost, the improvement in the firearm which wrought the transformation of the battlefield and called forth an increased demand for cover against the murderous effect of fire. The infantry sought safety in sparser formations and in utilizing the smallest accidents of the ground for cover, while the artillery adopted armored shields, covered positions, and indirect methods of fire. It was only the cavalry that could not keep pace with these developments. Forming a conspicuous target, capable of being concealed only behind considerable inequalities of the ground, it could indeed seldom find cover within the range of the enemy's fire. As, at the same time, its strength in comparison to that of the great armies of the present day, has sensibly diminished, it might be concluded that its particular value in battle had decreased considerably in possibility and importance.

This conclusion is thoroughly justified, but not altogether in the way that one is inclined to assume. For one reason, the cavalry is now supplied with an excellent firearm, which its mobility enables it to employ against the most sensitive parts of an enemy's line of battle. For another, the composition of modern armies offers, as I have frequently said, many new possibilities of success. Newly raised levies, such as will often have to take their place in the great armies of the day, cannot possess the same steadiness as standing permanent troops. They are, according to experience, very sensitive to moral impressions, and will often enough, when shaken in battle, offer a tempting and suitable object of attack to the cavalry. At the same time, the fact remains that, by reason of its relative numerical weakness, cavalry can no longer retain its former importance in the battle, and that the manner of its intervention in the fight must often be of a very different nature from what it has been in the past.

On the other hand, the duty of cavalry in the sphere of reconnaissance has increased in importance. For all strategical movements the main body of the modern army demands considerably more time and, generally also, comprehensive prepara-

tory measures. If, therefore, intelligence as to the disposition of the enemy is to be of use in operations, it follows that it must be procured at the earliest possible moment. Whoever gets the earliest and best information possesses nowadays a far greater advantage than formerly, when, with the small armies of the day, movements and combinations of force could often be successfully carried out in the immediate presence of the enemy's army. These are indeed still possible in occasional cases and where sufficient depth of formation is maintained, and it is this circumstance that has made early and full intelligence, combined with successful screening of one's own movements, one of the most important factors of success.

There are people who, in fancy, already see cavalry replaced in this rôle by an air fleet. Such prophets cannot, however, be treated seriously. The air cruisers will not be designed for all the possibilities of war. In the period of concentration and in fortress warfare they would doubtless be able, even in their present condition, to render excellent service. Whether they can be adapted for use in a war of movement remains to be seen; but, even if they can in time be of more service for war than at present appears to be the case, their capabilities in this direction will always be limited. They can only observe at night under favorable conditions—such things, for example, as large detrainments of troops or bivouacs with fires burning. They are under all circumstances dependent upon the weather. By day the air fleet of the enemy will seek battle with them in order to hinder their reconnaissance. Hostile artillery will be particularly dangerous to them, and will be able, thanks to the developments in modern ordnance, to wage successful war against them. All detachments cannot possibly be supplied with airships, owing to the great cost and enormous apparatus entailed, and their usefulness will therefore only be realized with the larger formations. Finally, one or the other of the air fleets will be driven from the field, or rather from the air, and that side which meets with defeat will be deprived of all means of reconnoitering unless it can rely on its cavalry. So in the most modern war the cavalry remains the principal means of reconnaissance. Its activity may indeed be supplemented by airships, but will never be replaced by them.

These circumstances, however, necessitate a new rôle for cavalry. It must drive the hostile cavalry from the field, a cavalry which will do all in its power to secure its own army against intrusion. It will find this cavalry reinforced not only by horse artillery and machine-guns, but also by cyclist battalions, mounted and other infantry, and will therefore have to be prepared, in order to properly carry out its service of exploration, to fight against detachments of all arms. But the same thing will also happen when it seeks to veil the movements of its own army, or to undertake some enterprise against the enemy's communications, or to defend its own against similar hostile raids. Our cavalry thus finds itself face to face with totally new duties of a most real kind, towards the carrying out of which it has no previous experience to help it.

In the wars of Frederick the Great and of Napoleon, as well as in the German war of Unification, there is a total absence of analogy from which to draw conclusions that can be practically applied. The wars in South Africa and Manchuria, on the other hand, reveal conditions which have very little in common with those of a European war such as the German cavalry will have to fight. Nowhere can the few experiences of cavalry action gained in these wars be immediately applied, and there are but few bases for the formation of judgment as to what is practical and possible under modern conditions. The same may be said to hold good of the Russo-Turkish war. The most interesting and instructive campaign for the service of modern cavalry appears to be the American war of Secession, which is, however, almost unknown in Germany, where there is a lack of opportunities to study it.

There is, therefore, for our cavalry a want of any sort of tradition for that rôle which it will be expected to carry out in the next war, and this want will be the more felt as it will in the future be expected to deal with a number of technical methods of communication which are as a whole still almost unknown, and as to the actual war value of which no judgment can yet be formed. Up to now, also, cavalry training as carried out since the war of 1870-71 has been unable to create a sound foundation for preparation for war. Left far behind in the march of military progress, in tactics as well as reconnaissance

it has been led so far from the right way that it would have been unable to stand the test of serious war. Nor have we yet fully extricated ourselves from these trammels of the past.

For the moment, therefore, our cavalry finds itself in a state of transition. The demands which modern war will make upon it have not yet penetrated into its flesh and blood, that is to say, their extent and range have not yet been clearly grasped by the arm, nor have we yet by any means succeeded in breaking loose from the fetters of the past. Views based on antiquated assumptions are often apt to survive and to influence training as well as leading.

This is particularly the case as regards reconnaissance. In tactics, too, the cut-and-dried methods of bygone days are clearly not yet forgotten, while for enterprises against the enemy's communications there is a want both of practical training and theoretical instruction.

This state of affairs must be regarded as a great evil, as at the outbreak of a war there will no longer be time to collect experiences. From the very first day onward the greatest demands will be made upon the cavalry, not only as regards intentions, but performances. On the achievements of the cavalry in the early days of the war will depend to a considerable extent the success of the first great decisive encounter.

We must therefore be prepared to meet these great demands when war breaks out. Only a clear recognition of the necessities and the possibilities of maneuver and training can secure us this preparation. There remains, then, nothing for us—with no practical war experience to go on—but to create the groundwork of our methods of training from theoretical and speculative reflection. With all the means of intellect and foresight, we must endeavor to discern the probable course of the war of the future and regulate the methods of training accordingly.

Peace exercises based upon such clearly defined principles must serve as a further guide to what is possible and practical. They cannot, it is true, afford realistic results, as they lack the effect of weapons, the hostile country, the thousand causes of friction, and the moral factors of serious war. They can, however, be regarded as practical guides in many directions and will help us to evolve methods unattainable by pure theory: for in-

stance, in increasing the capabilities of the troops, improving the practical arrangements for communication, the transmission service, the patrol system, and the like. Only these peace experiences must not be overrated, but subjected to continual criticism by the light of what would be practical in war.

It thus remains our chief duty to get a clear and just idea of the rôle that cavalry will play in a future war, in order to clear the mind fully on this point, and so be able further to build upon the foundations of sound reasoning.

The new Cavalry Drill Regulations,* in which I had the honor and pleasure of collaborating, have undertaken the creation of these fundamental principles of the independent rôle of cavalry. Their teachings, however, have as yet by no means penetrated into the ranks. The new Drill Regulations have endeavored to give new rules for the tactical employment of cavalry, which have not yet sufficiently established their value, even on the maneuver-ground. As yet the troops are only endeavoring to get accustomed to them.

It is also obvious that practical drill instructions, at least for tactics, can only give general principles, and cannot be too definite, lest they should thereby tend to limit the independence of leaders in the thousand varied happenings of war.

It is quite another matter for him who is not called on to make regulations, but whose task is rather to clear the understanding, to stimulate independent thought, and to encourage the troops themselves to form correct judgments. Thus will be molded the efficiency which will enable the soldier to act in the presence of the enemy according to the Regulations, with full freedom of thought, not after the letter, but the spirit, and even perhaps, in many cases, the intention of them.

From this point of view I have set forth my views and reflections. It seems to me, above all things, important to discuss those points which will be new to cavalry in a future war, and in so doing to touch on many matters of training which long years of experience have convinced me are practical. May I by these

*"Exerzier-Reglement für die Kavallerie," part of which has been translated and published by the General Staff, War Office These Regulations are frequently referred to throughout this work.—TRANS.

hints contribute towards the formation of fresh traditions for the training of the arm that will march with modern conditions, that will break away for good from all half-measures and obsolete views, and thereby clear the way towards a proper conduct of the cavalry in war, and to the winning of fresh and imperishable laurels!

Where I have occasion to touch on views formerly expressed and set forth in my various writings, I find no reason to retract any of them. In certain directions they have naturally developed further, and have become more progressive under the impress of the whole of modern development and the latest experiences of war. On the whole, however, I adhere to my opinions, and only seek to supplement and develop them in order to suit them still better to the practical needs of the arm. I hope they may act as a stimulus and serve as a guide to many a comrade in difficulties.

THE CHANCELLORSVILLE CAMPAIGN.*

By Major JOHN BIGELOW. Jr., U. S. Army, Retired.

HOOKER and his chief of staff applied themselves energetically to the improvement of the army in organization, equipment and *morale;* they commenced by altering its organization as indicated in the following order issued February 5 :

I. The division of the army into grand divisions, impeding rather than facilitating the dispatch of its current business; and the character of the service it is liable to be called upon to perform being adverse to the movement and operations of heavy columns, it is discontinued, and the corps organization is adopted in its stead. They will be commanded as follows :†

First Corps, Major-General John F. Reynolds.

Second Corps, Major-General D. N. Couch.

Third Corps, Brigadier-General D. E. Sickles (temporarily).

Fifth Corps, Major-General George G. Meade.

Sixth Corps, Major-General John Sedgwick.

Eleventh Corps, Major-General Franz Sigel.

Twelfth Corps, Major-General H. W. Slocum.

II. Hereafter the corps will be considered as a unit for the organization of the artillery, and no transfers of batteries will be made from one corps or division to others except for purposes of equalization, and then only under the authority of the chief of artillery.

III. The cavalry of the army will be consolidated into one corps, under the command of Brigadier-General Stoneman, who will make the necessary assignments for detached duty.

*From the advance sheets of the book of this title that is being published by the *Yale University Press.* It is hoped to have a review of this work appear in this number of the Cavalry Journal.

†These assignments to the command of the several corps were, by law subject to approval by the President, and had yet to receive such approval.

The most noteworthy of these changes was the multiplication of the strategic or grand tactical units, the substitution of seven corps (eight, including the cavalry corps) for four grand divisions. If rightly viewed and interpreted, it augured ill for Hooker's generalship. The two reasons which he assigns for the change may be distinguished as administrative and tactical. The administrative reason would have been a good one if administration were alone to be considered in the organization of an army, which it never is. Administration should not be permitted seriously to interfere with tactics. When administrative convenience and tactical efficiency conflict, administrative convenience should give way. Hooker's tactical reason for the change was an excellent one for not making it. The smaller the columns, the larger must be their number, and the greater the need of grouping them and having them directed by the group commanders rather than directly by the army commander. While Hooker's army was to be resolved into seven corps, Lee's comprised but two. It was but half as numerous as Hooker's, yet one of its corps was about twice as numerous as one of Hooker's.* One of the first principles of strategy and tactics as well as of drawing, painting, sculpture, etc., of the military art, as well as of the fine arts, is to secure the effect of masses. This simple, fundamental truth is easy to grasp, but hard to apply. With great soldiers, and perhaps with great men generally, it is an instinct, or second nature. Grant and Lee and Jackson showed that they possessed it in a high degree. When Grant in the spring of 1864 joined the Army of the Potomac as Commander of all the armies of the United States, one of his first official acts was to reduce the number of his army corps by consolidating the five corps of the Army of the Potomac into three, which increased their average strength from 15,646 to 20,077 officers and men present for duty equipped, or "available for the line of battle." The average grand division numbered about 35,000 men, or, deducting cavalry, about 31,800 men present for duty equipped. Grant's annihilation of two historic organizations, with all their prestige and *esprit de corps,* would have been unnecessary had

*Further particulars as to the strength and composition of the opposing armies will be found in Chapter X.

the grand divisions been preserved. It may be doubted whether the reason given in Hooker's order was the real or the whole reason for his abolition of them. He probably distrusted the ability of their commanders, and was unable to replace them by better ones or indisposed to offend them by so doing.

Major-General Franz Sigel, who had commanded the Grand Reserve Division, and on its abolition was given the command of the XI Corps, lately a part of that grand division, was not satisfied with the size of his command. He tried to have the XI Corps made larger, and, not succeeding, asked on the 12th of February to be relieved from the command of it, expressing, however, a desire to remain in the service of the United States. He fought in the German revolution in 1848 and 1849, commanding bodies of volunteers varying in number from 4,000 to 15,000. In 1852 he came to the United States and became a teacher and the editor of a military magazine, first in New York and then in St. Louis.

At the outbreak of the war he was the rallying point of the Germans of Missouri and the Northwest, raising the first German regiment. He was commissioned a brigadier-general in 1861, and major-general in 1862; participated in the fighting for the possession and control of Missouri, and commanded a corps under Pope in the second Bull Run campaign.*

General Sigel was popular, not only in the large German element of the XI Corps and of the Army of the Potomac, but among Germans in all the armies and throughout the country. "I fights mit Sigel" was a shibboleth of German-Americans.

Hooker indorsed Sigel's request with the remarks:

"Respectfully forwarded and reluctantly approved, as Major-General Sigel requests it. This officer is my senior, and feels that he should have the largest corps to command. In breaking up the grand divisions, I preserved the corps organizations, for in that seemed to be strength. The officers knew the men, and the men knew their officers.

"The Major-General commanding the Eleventh Corps desires that the action of the proper authorities may be telegraphed as soon as made."

**Appletons' Cyclopædia of American Biography.*

On the 19th this paper was referred by Halleck to the Secretary of War, and submitted by him to the President. His action thereon was telegraphed to Hooker in the form of the statement: "He has given General Sigel as good a command as he can, and desires him to do the best he can with it."* Sigel was not satisfied. He left the army on leave, and the command of his corps devolved temporarily upon Brigadier-General Julius Stahel, who had held it under him in the grand division.

The assignment of Brigadier-General Sickles, though "temporarily," to the command of the III Corps gave offense to Major-General Howard, who commanded the Second Division of the II Corps. He wrote to Hooker requesting that he be assigned to command according to his rank. Sickles and Howard were both commissioned as major-generals on the 29th of November, 1862. Howard accepted his commission, thus becoming a major-general on that date; Sickles did not accept his, and so did not become a major-general until March 29, 1863. Not wishing to relieve Sickles, Hooker telegraphed on the 20th to the Secretary of War:

"Has the resignation of Major-General Sigel been accepted, or is that officer to be removed from command of the XI Corps? I desire to ascertain in order that, if so, Major-General Howard, the highest in rank in this army for advancement to corps commander, may be assigned to it.

"General Howard is an officer of uncommon merit, is favorably known to this army, and is fully identified with its history. It is highly important that the commander of the XI Corps should be named and that he should be on duty with it."

This inquiry had not been answered when, on the 31st of March, Hooker issued the following order:

"II. Maj. Gen. O. O. Howard, U. S. Volunteers, being the senior major-general not in command of a corps, is temporarily assigned to the command of the Eleventh Corps, and will assume the duties pertaining to it without delay."

Oliver Otis Howard was born in Leeds, Me., on the 8th of November, 1830, and graduated from West Point in 1854. He commanded a brigade at the first battle of Bull Run, and for gal-

*W. R., 40, pp. 70, 71.

lantry in that engagement was made brigadier-general of volunteers; he was twice wounded at Fair Oaks, where he lost an arm; he participated in the battle of Antietam; and as brigadier-general commanded the Second Division of the II Corps at the battle of Fredericksburg.* Though his military record was better than Sigel's, he was to the XI Corps *persona non grata,* principally because he was thought to have displaced their countryman and favorite. The Germans regarded Howard's appointment as a blow at their nationality, a reflection on German generalship. They "knew little and cared less about Howard's reputation as a great Biblical soldier, the Havelock of the army, as he was called, owing to his having studied for the ministry in the Presbyterian Church."†

Having learned that the recommendations of the corps commanders for appointments on their respective staffs, authorized by law, could not be favorably considered by the President until the corps commanders themselves had been designated by the President, Hooker wrote on the 10th of April to the Adjutant-General of the Army, requesting that his selections of corps commanders be confirmed with as little delay as practicable. These, including Howard, were accordingly published from the War Department on the 15th of April as assignments made by the President.‡

Couch, Sickles, Slocum and Stoneman were born in the state of New York; Sedgwick in Connecticut; Reynolds in Pennsylvania, where he was to die on the field of Gettysburg; Meade, who was to command the Army of the Potomac on that field and to the end of the war, was born at Cadiz, Spain. The oldest corps commander was Sedgwick, numbering fifty years, one year more than Hooker; the youngest was Howard, numbering thirty-three. All were graduates of West Point except Sickles, who was a well-known Democratic politician and member of Congress from New York. No two of these West Pointers were classmates, but Sedgwick was a classmate of Hooker's. Reynolds, Couch, Meade and Sedgwick had served in the war with Mexico,

**Appletons' Cyclopædia of American Biography.*

†*Chancellorsville and Gettysburg,* by Abner Doubleday, p. 3.

‡*W. R.,* 40, pp. 195, 211, 212.

and fought Indians either in Florida or on the Plains. Sickles, Howard and Slocum had not the advantage of such experience. Stoneman was not in the Mexican War, but had served in the field against Indians. As commanding officer of Fort Brown, on the Lower Rio Grande, he refused to obey the order of his department commander, General Twiggs, to surrender the government property to the secessionists. He evacuated the fort, and went to New York by steamer. Meade, Couch and Slocum had resigned from the army. Meade returned to it, however, in 1842. At the outbreak of the war Couch had been in civil life six years, and Slocum five. All were in the military service of the United States or came into it in 1861, and had participated in various campaigns of the Civil War.*

Lee's two corps commanders, Jackson and Longstreet, were both graduates of West Point, and both served with distinction in the Mexican War. Longstreet served on the Plains before and after the Mexican War. Jackson had no such experience. In 1851, after a few years of garrison duty in the East, Jackson resigned from the army to accept a professorship of Natural and Experimental Philosophy, or Physics, at the Virginia Military Institute. He filled this position until 1861, when he exchanged it for a colonelcy in the Virginia State Line. The same year he was appointed a brigadier-general in the Provisional Army of the Confederacy. For distinguished service at the first Bull Run, where he won the name of Stonewall, he was promoted to major-general and given the independent command of the Valley District, comprising the Shenandoah Valley. His brilliant operations in this region, his masterly march from the Valley to the railroad north of Richmond and from the Rappahannock to the rear of Pope's army, and his able handling of a wing of Lee's army in the campaign of Antietam, brought him in October, 1862, promotion to lieutenant-general and appointment to the command of the II Army Corps. With this command he held the right of Lee's line at Fredericksburg. At the beginning of the Civil War he had less military experience than most, if not all, of the commanders on either side who had served in the "old army." But there were few, if any, who had mastered so much

**Appletons' Cyclopædia of American Biography.*

of the theory of war, and so perfectly disciplined their minds by the study of military and mathematical problems. By 1863 he had gained more war experience than any of them, with the single exception of R. E. Lee, and was second only to the latter in the hearts of the people and the soldiers of the South.

Longstreet, on resigning from the army in 1861, was appointed a brigadier-general in the Provisional Army of the Confederacy. He commanded a brigade at the first Bull Run. In 1862 he was made major-general. He commanded a division in the Peninsula campaign, a wing of Lee's army—Jackson commanding the other—in the second Bull Run campaign, and in the Antietam campaign. He was promoted to lieutenant-general and given command of a corps at the same time as Jackson, and with his corps held the left of Lee's line at Fredericksburg. In 1863 Longstreet was 42 and Jackson 39 years of age.

J. E. B. Stuart, Lee's chief of cavalry, was at this time but 30 years of age. Graduating from West Point six years after the Mexican War, he had no experience in regular warfare, but had served on the Plains and been wounded in an encounter with Indians. Resigning when his native state, Virginia, passed its ordinance of secession, he was appointed a lieutenant-colonel of infantry in the Virginia State Line. In July, 1861, he was appointed a colonel of cavalry in the Provisional Army of the Confederacy, and in September of the same year a brigadier-general of cavalry. In July, 1862, he was promoted to major-general of cavalry. He had proved himself a master of the art of screening and reconnoitering, and had distinguished himself especially in two raids, one on the Peninsula, the Chickahominy raid, and one in Pennsylvania, the Chambersburg raid, in each of which he marched completely around McClellan's army.

General Hooker was the first commander of the Army of the Potomac, and the last one, to substitute pack-mules for army wagons extensively in that army. The coming of the pack-mule was announced by a special order, March 19, providing for the distribution of 2,000 pack-saddles. (*Appendix 2.*) It made no mention of the cavalry corps or the artillery reserve, from which it was inferred that these commands were not to march with the army.

As compared with wagons, pack-mules require more men, and more animals to a given freight, take up more room on a road (if kept on it), and by leakage and drainage waste more of the freight. At every halt, wagon-mules can rest without being unharnessed or even unhitched—not perfectly, but far better than pack-mules can without being unpacked. To unpack a train of mules and afterward repack them consumes so much time that it does not pay in halts of less than an hour's duration. It is harder on pack-mules to make the ordinary halts of five or ten minutes per hour than to keep going. Pack-trains are capable of traveling faster than wagon-trains, but to do this for any length of time without hardship they must be allowed to travel their own gait; the troops must conform to the movements of the train or allow the train to travel independently, which in active campaigning is often inconvenient or unsafe. In a country covered with woods and underbrush, pack-mules straying off the roads will rub their loads loose and the packers exhaust themselves running after them. To obviate this the mules in this campaign were tied together in strings of two or three, and led. Thus secured, they did not stray away, but instead of rubbing against trees, they rubbed against each other, with about the same effect upon the loads, and a worse effect upon their poor bodies. This arrangement must have been a cause of many of the sore backs engendered during the campaign.* The abolition of the grand divisions was unfortunate, but perhaps necessary. The introduction of the pack-trains was unfortunate and unnecessary, or ill advised. Another change made by Hooker to the detriment of the efficiency of his army was to strip his chief of artillery of all executive functions and so reduce him to his original purely administrative usefulness. He was not to take command of the troops, or to give any orders to the artillery, unless specially authorized to do so, and all such authority would "expire with the occasion."†

In the Army of Northern Virginia the only material change of organization took place in the artillery. The batteries were grouped into battalions generally of four batteries each, and these

*For a full discussion of the transportation of the Army of the Potomac, the reader is referred to *W. R.*, 40, pp. 544-563.

†Hunt's testimony, *Rep. of Com.*, IV, 91-93.

battalions assigned to corps. It was provided that all the artillery in both corps should "be superintended by, and report to, the general chief of artillery."*

There was no express provision for a general reserve of artillery, but one was formed of the batteries not assigned to an army corps or to the cavalry division.

The chiefs of artillery of the several corps assigned battaltalions to the divisions and to the reserves of the corps; that is, they determined the composition of the divisional artillery and corps artillery, and could change it by the transfer of battalions at their discretion. They had tactical as well as administrative control of the artillery; in the absence of specific instructions from the army commander, or their corps commanders, they were in action to direct the posting and firing of their batteries or battalions, as well as at all times to keep them properly supplied and instructed, and generally serviceable and efficient.

The Federals had no unit corresponding exactly to the artillery battalion of the Confederates, but the groups of batteries attached to the Federal corps and divisions served the purpose of battalions. They were, however, considerably weaker than the latter. The corps and divisional groups (including the single divisional batteries) of the Army of the Potomac numbered, on an average, but two batteries, or twelve pieces.

In the Army of Northern Virginia each corps had its reserves, or corps artillery; in the Army of the Potomac, corps artillery existed only in the II and XI Corps. The Federal drill regulations for artillery issued March 1, 1863, contained the following statement: "The *artillery reserve* is commanded by a superior officer of artillery, and constitutes a distinct arm of battle under the immediate orders of the general commanding." This artillery was to be kept in rear of the infantry until the enemy's force had been fully developed, then to be brought up and its fire concentrated upon the point selected for the decisive attack.

In the cavalry the Smith's carbines were condemned at this time, and replaced by the Sharp's. The latter had not the range and penetration of the infantry rifle nor the rapidity of fire of the Spencer repeating carbine, which was later to take its place,

W. R., 40, p. 625.

but its fire was so much more rapid than that of the infantry rifle that the Federal cavalry dismounted would confidently withstand the attacks of much more numerous forces of infantry.

Under Hooker the inspector-general's department was not so much reorganized as created.* Vacancies were filled by competent officers, and the corps increased so as liberally to provide inspectors for all arms. Colonel E. Schriver was announced as inspector-general and Lieutenant-Colonel N. H. Davis as assistant inspector-general. There were inspectors of infantry, inspectors of cavalry, and inspectors of artillery. Each brigade had an inspector, and the inspectors themselves were organized thoroughly under the head of the inspector-general of the Army of the Potomac. There were frequent formal inspections of the regiments, and these inspections were extended to the outposts and pickets, which up to this time had been under the supervision simply of the officers commanding the troops.

A proclamation of President Lincoln issued on the 10th of March held out a promise of complete amnesty to all absentees who should rejoin their regiments before the 1st of April. The President had relinquished his right to review the sentences of courts-martial. It was with his approval that Hooker, on the 14th of March, issued the following order:

"III. Officers reviewing the proceedings of court-martial will hereafter withhold their approval from sentences which cannot be carried into effect within the limits of this army. When such (sentences) are awarded the court will be directed to reconsider its action."†

There were no more delays in the execution of military law, no more appeals to Washington, which Lincoln's humanity always terminated by a commutation of penalty. Deserters were arrested, and promptly tried, sentenced and punished accordingly. The spectacle of a few of them shot to death in the presence of the troops produced a most salutary effect.‡

Capital punishment was at this time familiar also to the

**History of the II Army Corps*, by F. A. Walker, pp. 202, 203.

†*W. R.*, 40, p. 137.

‡*History of the Civil War in America*, by Comte de Paris, III, 3, 4; *Mag. of Am. Hist.*, XV, 193.

Army of Northern Virginia. General Paxton, commanding the "Stonewall" brigade, wrote home on the 15th:

"Today I had a visit from the father and mother of a poor fellow who has been tried by a court-martial for cowardice. She was in great distress and said it would be bad enough to have her boy shot by the enemy, but she did not think she could survive his being shot by our own men. * * * I have about twenty of my men in close confinement, whose sentences have not been published, many of whom are condemned to death. It is for General Lee to determine what shall be done with them."*

A creation of Hooker's hardly less important than the inspector-general's department was his service of information.

"When General Hooker assumed command of the army there was not a record or document of any kind at headquarters of the army that gave any information at all in regard to the enemy. There was no means, no organization, and no apparent effort to obtain such information. And we were almost as ignorant of the enemy in our immediate front as if they had been in China. An efficient organization for that purpose was established, by which we were soon enabled to get correct and proper information of the enemy, their strength, and their movements. * * * I called Colonel (G. H.) Sharpe, commanding a regiment of New York troops (120th), to headquarters, and put him in charge of that bureau (Military Information) as a separate and special bureau."†

Colonel Sharpe was appointed deputy provost-marshal-general. This appointment, together with a number of others, was published to the army in a general order on the 30th of March.

Flags were prescribed for the designation of army corps headquarters, and badges to be worn on the caps of officers and soldiers to indicate the corps and division to which they belonged.

The provision regarding flags to designate corps headquarters was not generally carried out, but the badges became popular among both officers and men. They may be said to have originated with General Kearney on the Peninsula in 1862. That officer, experiencing the disadvantage of not being able readily

**Memoir and Memorials of Brigadier-General E. F. Paxton*, by his son J. G. Paxton, pp. 92, 93.

†*Rep. of Com.*, IV, 74.

to recognize the men and officers of his corps, required them to wear for their identification a patch of red cloth on their caps, which came to be known as "Kearney's patch." The idea of corps badges to be worn throughout the army was suggested to Hooker by Butterfield, who devised the badges in detail.

How the vitally important problem of supplying ammunition was to be solved was prescribed in an order issued on the 25th of March.* We shall see that it did not prove an effective solution.

The evils of discomfort and disease among the men, due largely to neglect and ignorance on the part of their regimental officers, were remedied pursuant to recommendations made by the medical director.†

Letterman to Hooker, March 9th.

"I have the honor to invite the attention of the Commanding General to a practice quite prevalent in this army: that of excavating the earth, building a hut over the hole, and covering it over with brush and dirt or canvas. This system is exceedingly pernicious and must have a deleterious effect upon the health of the troops occupying these abominable habitations. They are hotbeds for low forms of fever, and when not productive of such diseases, the health of the men is undermined, even if they are not compelled to report sick. I strongly recommend that all troops that are using such huts be directed at once to discontinue their use, and that they be moved to new ground, and either build new huts or live in tents. I also recommend that, in huts covered by canvas, the covering be removed at least twice a week, if the weather will permit, and that the men throughout the Army be compelled to hang their bedding in the open air every clear day" (*Medical Recollections of the Army of the Potomac*, pp. 103. 104).

On the 7th of February the following order was issued at the request of the chief commissary:

"Flour or soft bread will be issued at the depots to commissaries for at least four issues per week to the troops. Fresh potatoes or onions, if practicable, for two issues per week. Desiccated mixed vegetables or potatoes for one issue per week.

"Commanders of army corps, divisions, brigades and separate commands will require any commissary under their orders who fails to issue the above-named stores to the command to which he is attached, and as often as stated, to produce written

W. R., 40, pp. 156 *et seq.*

†*Letterman to Hooker, March* 9.

statement of his supplies to the effect that they were not on hand at the depot for issue to him, or otherwise to satisfactorily account for his failure."

The soldiers' fare was further improved by an act of Congress providing for the supervision of the cooking by both medical and line officers; for the detailing of privates as cooks, and the enlistment, in each company, of "two under-cooks of African descent," who should receive for their compensation ten dollars per month and one ration per day. The same act provided for the issue of pepper in the proportion of four ounces to every hundred rations.*

By these measures and others the health of the army was improved. (*Appendix 5.*)

Tobacco, the soldier's solace, was regularly issued, and an occasional issue of whisky was made upon return from severe exposure on picket or fatigue duty. The clothing, often before of shoddy material, was carefully inspected and furnished of better quality.†

The general state of the opposing armies as to numbers and efficiency at the end of the first month of spring is shown in the following table:‡

State of the Army of the Potomac and of the Army of Northern Virginia, Officers and Men, March 31, 1863.

	PRESENT.				
	For Duty.	Special, Extra or Daily Duty.	Sick.	In Arrest or Confinement.	Aggregate.
Army of the Potomac	136,724	13,000	11,936	1,345	163,005
Army of Northern Virginia	64,799	5,050	6,308	1,222	77,379

	ABSENT.				
	Detached Service.	With Leave.	Sick.	Without Leave.	Aggregate.
Army of the Potomac	20,188	3,058	26,575	1,941	51,762
Army of Northern Virginia	6,251	4,140	16,136	5,953	32,480

	Present and Absent.
Army of the Potomac	214,767
Army of Northern Virginia	109,859

*"An act to improve the efficiency of the corps of the engineers and of the ordnance department, and for other purposes, approved March 3, 1863," Sections 8-11.

†*Mag. of Am. Hist.*, XV, 190.

‡Unpublished record of the War Department.

The figures for the Army of Northern Virginia include Hampton's brigade, which was absent recruiting and remounting, and Jones' troops in the Valley District. They do not include the artillery of Jackson's corps,* but on the whole they are somewhat larger than they should be for the army confronting Hooker. They show, however, that the ratio of sickness, the ratio of absence (with and without leave), and the ratio of punishment were smaller in the Federal army than in the Confederate.

One of the most potent causes of desertion in the Army of the Potomac was the scarcity of furloughs and leaves of absence. Hooker, under some difficulties, did much to satisfy the natural desire of officers and men for such privileges.

One of his chief measures for reforming the Army of the Potomac was the institution of regular theoretical and practical instruction. Both seem, however, to have been conducted on narrow lines, the theoretical instruction being limited to recitations on the drill regulations, or tactics, as they were then called; and the practical instruction to drills in the school of the company, battalion, regiment and brigade.† Field exercises, it seems, were few and far between, and on a small scale. There was practically nothing done for the training of corps and division commanders and their staffs under conditions of battle; no maneuvering of large units in the presence of a marked or represented enemy. The author can find nothing corroborative of Hooker's testimony on this point before the Committee on the Conduct of the War:

"Believing idleness to be the great evil of all armies, every effort was made to keep the troops employed; and whenever the weather would permit it they were engaged in field exercises, and whenever the state of the roads and the river would admit of a movement, expeditions were fitted out to attack the enemy's pickets and outposts, and gather supplies from the country in their possession; my object being to encourage and stimulate in the breasts of our men, by successes, however small, a feeling of superiority over our adversaries."

Both Hooker and Lee attended to fostering and developing

*W. R., 39, p. 695.

†*Reminiscences of Service in the 1 R. I. Cavalry,* by G. N. Bliss, p. 14.

the martial spirit of their armies by the bestowing of medals, the inscription of the names of battles on the flags, etc. (*Appendix 7.*)

A weak point of the Army of the Potomac, to which Hooker and his chief of staff gave special attention, was the performance of outpost duty. Its improvement was slow and difficult of achievement. (*Appendix 8.*)

The boundary line between Maryland and Virginia, commencing on the seacoast, divides a peninsula into two parts, known as the "Eastern Shore" of Maryland and the "Eastern Shore" of Virginia. The latter region, which would seem geographically to belong to Maryland, was included in the act of secession by which Virginia joined the Confederacy. A portion of its population carried on regular traffic in contraband goods with people of the mainland of Virginia. By a system of daily communication between the Confederate commanders and their allies in Baltimore, full information was obtained of the disposition and movement of the Federal forces and the designs of the Federal government. To put a stop to these practices a Federal force marched into the Eastern Shore of Virginia in 1861. Though the country was occupied by Federal troops from that time on, it was not so controlled but that the Confederates whom it continued to harbor could ply their hostile vocation, as the following correspondence shows:

Haupt to Wells, Secretary of the Navy, January 31.

"I am informed that an extensive smuggling business is done near the mouth of the Potomac, opposite St. George's Island, in small boats, which are secreted in the creeks or drawn up in the bushes and used at night; that in this way mails are carried and many wagon-loads of shoes and other necessaries transported to Richmond. The trade could be broken up, or seriously interfered with, by searching for and seizing all the boats and by the establishment of an efficient river patrol."*

Butterfield to Magaw, February 1.

"General Hooker desires that you should use every exertion to stop the passage of small boats conveying deserters from the

Naval W. R., Series I, Vol. V, p. 226.

army across the Potomac. It is believed that large numbers cross the Potomac in small boats and below Aquia Creek. Any person detected in this occupation by your efforts, he requests be turned over to the provost-marshal at Aquia Creek, with written memoranda of the circumstances attending their capture.

"I believe that spies and contraband information are conveyed across the Rappahannock below the lines of our army."

Reprints and Translations.

WHAT IS THE BEST ARMAMENT FOR MODERN CAVALRY.*

By KARL BARON STIPSICZ, Montecuccoli Dragoons.

THE greatest controlling factor in the development of armies is armament. The character of war has been materially changed by the introduction and subsequent development of firearms. No longer can the single individual, by personal courage, exert an appreciable influence on the course of the battle; he has become a tool in the hands of the leader, for in present day long range battles the single individual is lost in the great mass. Thus knighthood died out and dismounted troops became, through its fire effect, the decisive main arm in battle of our modern giant armies. Still no one can say that mounted troops have been driven completely off the field; they have been changed into an exceedingly important auxiliary arm. Nowadays the mounted arm is sent ahead of the armies and secures information of the enemy which forms the basis for the leader's decision. It can suddenly appear at the point where its appearance will be of the most disadvantage to the opponent and most advantageous to our own intentions.

In executing a raid against the line of communication of the enemy it strikes the most vulnerable spot of the hostile army and can perform great service in a battle by enveloping or going around the hostile wing. The activity of cavalry does not cease with the battle; its main duty commences after that; for when

*Translated from *Kavalleristische Monatshefte,* September, 1910, by Harry Bell, M. S. E., U. S. Army.

the question is of fully gathering the fruits of a hard fought victory by completely demoralizing the beaten hostile army and annihilating it we will have to fall back on cavalry to gain that object.

Thus we see that cavalry, which heretofore was utilized as a battle arm, will have to solve quite different tasks in modern war and will have to act along different lines. It is evident that cavalry cannot trot peacefully against quick-firing repeating arms; but it is also evident that cavalry, appearing suddenly and unexpectedly and charging with *élan*, can defeat troops armed with the best of weapons. However, success will be in consonance with the means employed only when the utilization of this costly arm is carried out in a manner corresponding to its inherent characteristics; and when that is done, we are justified in expecting great results.

With the development of firearms of infantry and artillery, cavalry was compelled on the one hand to improve and utilize to the utmost its inherent celerity, and, on the other hand, to keep pace with the *technique* of arms and resort to the carbine, so as not to be outdone and forced into the background by these other arms. Celerity must at all times remain the first characteristic of cavalry, which naturally can be utilized to the best advantage where the difference between the slower movement of infantry is more apparent, *i. e.*, in covering larger distances. Consequently, for all operations requiring covering larger distances it will be the rule to utilize cavalry. And in doing so it is not so very important to utilize the latest technical improvements in order to increase the fire power of cavalry. Thus cavalry will not be confined to certain defined limits in its sphere of action by attaching to its horse artillery, machine guns, telegraph detachments and bridge trains; it will far rather be enabled to increase the field of its activity and perform more and better service by having these auxiliary arms attached.

Cavalry is a very costly arm, which, however, if correctly employed, can be of the greatest use. But in order to reap all the benefits of cavalry we must equip it in consonance with its tasks. It is wrong to load down with heavy material (as is frequently done) the expensive cavalry horses, which guarantee the celerity and endurance of cavalry. The best way to save over-

loading the horse would be to accept for cavalry service only light recruits, and this method would be the least expensive. Height and weight of a man are surely not synonymous with force and endurance. If proper regard is paid to a recruit's weight when assignments are made to the different arms of the service a saving of approximately 10 kg. would result in the load the horse carries. That this would have a tremendous influence on the performance of the horse is self-evident. In addition, a great saving in weight can be made in the clothing of the trooper and in horse equipment.

Armament, however, should be considered in cutting down weight only as a very last resort, for arms prove the value of the horseman at the decisive moment. By this we do not mean that many and superfluous arms should be carried into the field in order to be armed to the teeth with lance, saber and bayonet and thus raise our own courage and frighten the enemy; we mean far rather that actual necessity should govern the selection of arms and that these should be light. For instance, it undoubtedly will be better to carry along more ammunition than not enough, so as not to be found wanting and unable to execute a certain order on account of shortage of ammunition. Carrying along plenty of ammunition is probably the only means to offset with rapid fire the weak number of arms. The few carbines which cavalry can put into the fire fight, however, must be of the very best and latest pattern; it is self-evident that parsimony in this respect would be ill advised.

Even if cavalry is supported in battle by auxiliary arms (horse batteries and machine guns), we can count with absolute certainty only on the weapons which each trooper carries. These are of great importance, for they represent his battle value. In a mounted action the trooper can utilize his inherent element, celerity and surprise, to better advantage than in dismounted action. Mounted action consequently is in better consonance with the cavalryman's characteristics than dismounted action and the former is resorted to with preference. In this method, however, he can utilize only his hand-to-hand weapons, and in cases where these are insufficient he must dismount and engage in the fire fight; and his armament must accordingly correspond with his dual manner of carrying on a fight.

When in the saddle, the question can only be of fighting at close quarters, for a shot fired from the saddle is influenced by the movements of the horse and an aimless fire is useless. Firing with the pistol, also, which is only intended for hand-to-hand fighting, must be limited to those exceptional cases in which the use of the saber is precluded or impossible, as, for instance, in the pursuit where we cannot reach the opponent, where a saber should snap or where a trooper loses the saber, or when we are ourselves closely pursued. It would not be advisable, for use in these exceptional cases, to overburden the already heavily loaded down trooper with a special arm, the utilization of which might endanger his own comrades. But it might be advantageous to supply magazine pistols to those officers and non-commissioned officers who in a dismounted fire fight act as commanders and who need no carbine.

The question now arises, which weapon is more advantageous in a mounted hand-to-hand fight, the saber or the lance? In larger bodies of troops the advantage of the lance undoubtedly is but a moral one, for in the mêlée the trooper must soon turn to his saber, because fighting with a lance would be out of the question there. The main point therefore is to know whether or not we are morally strong enough to carry an attack with the saber in hand into the hostile ranks. Cavalry which attacks the enemy with vim and vigor has the superiority over cavalry armed with the lance at the very moment in which it reaches the opponent with the saber. For this reason, if for no other, I believe I am justified in holding that the saber is all sufficient for our cavalry.

But there are other objections to the lance. The lance alone is insufficient; the trooper who carries it has to be armed with the saber in addition. It is in his way riding through forests or brush; it is an additional weight to carry; it takes much time and practice to become proficient in its use, and our length of service hardly suffices to properly instruct the men therein.

The saber is the cavalryman's main weapon. In the first place it is a cutting weapon, easy to handle; but it should not be too heavy. It should be fairly long, thus facilitating reaching the enemy on horseback and the hostile infantryman lying on the ground. That the saber should at the same time be a thrusting

weapon will be acknowledged by every swordsman, and must necessarily be a thrusting weapon, because clothing and equipment of the cavalryman save him in all but a few spots from injury by a cutting weapon.

With the saber the cavalryman is best armed for the mounted fight; but how about the dismounted fight?

In the dismounted fight the carbine is the main arm; it should differ from that of the infantryman only by being shorter and lighter, but by no manner of means inferior in its effect. On the contrary, we should always endeavor to give the benefits of improvements in construction, etc., to the cavalry, because it has to fight at the most exposed points with but few carbines, where the success or defeat of the cavalry would have a material effect on the infantry in rear. Attaching horse artillery and machine guns to the cavalry does not suffice, for these special arms can only support, but not totally replace, the fire effect of cavalry at important points. They can be effective only at certain points; at all other points along the fighting front the effect of the carbine has to be relied on. We repeat, cavalry is a very costly arm, but nevertheless we must not hesitate to arm it with the very best and most expensive arms in order to reap the full benefit of its employment. In following that policy the losses of cavalry will be materially decreased and its fighting power increased.

Many authorities hold to the view that the carbine, in the hands of the trooper, is a defensive arm and contrary to the proper cavalry spirit. It is true that it is suitable for the long range fight and for keeping the opponent at a long distance, but in the hands of the trooper each carbine should become an offensive weapon *par excellence*. It should enable him in the first place to make his way in situations where without the carbine he would be compelled to turn about. If a detachment of cavalry receives orders to occupy some important point and hold it until the arrival of infantry, the act of sending ahead a fire contingent is in itself an offensive procedure, as in most cases we cannot foresee whether or not the designated point may not have been reached ahead of the cavalry by the enemy. After reaching and occupying that point our cavalry probably will in most cases have to remain on the defensive until the arrival of

the infantry. But that we are enabled to take and hold that important point we have to thank the carbine for.

The carbine enables cavalry to solve a number of tasks and materially increases its sphere of action.

Experiments lately made to prove the suitability of magazine pistols, the holster of which to be utilized as stocks, have not proved satisfactory and that scheme should not be countenanced. We have seen that in mounted action the pistol is used as a hand-to-hand weapon only in exceptional cases. To arm the cavalryman with such a pistol seems inadvisable, to say the least. The pistol can only be used for close fighting and will but seldom be resorted to.

The question to be answered now is, does the cavalryman require an extra weapon for dismounted hand-to-hand fighting? The saber, especially as carried today, is an impediment to free movement; therefore it is detached from the belt and carried on the saddle. Thus the dismounted cavalryman has no special arm for the dismounted hand-to-hand fight and he naturally will dread the arrival of the moment when he must press forward into the hostile position. In most cases undoubtedly a reserve kept mounted will more quickly and effectively advance and strike the enemy as soon as fire superiority has been gained. The reserve, also, utilizing its mobility, can advance against the enemy's flank and rear and also take up the pursuit without delay. Still the interference of the reserve may often not be possible, the terrain preventing it, and often there may be no reserve because we are compelled to display our full firing power in order to gain the fire superiority. But there will be no success unless we enter the hostile position, and unless we do so we cannot drive off the enemy completely. On this account some armies have equipped their cavalry with a light dagger-bayonet, to be used especially in places where even small infantry detachments, favored by the terrain, may offer longer resistance to the cavalry and which can be driven off only by dismounted fire action. The necessity of such a bayonet is especially apparent in night operations.

Equally important as the armament of the cavalry is the necessity of carrying plenty of ammunition. Considering the rapidity of fire of modern rifles and carbines the effect of fire is

dependent not only on the number of rifles, but also on the number of rounds of ammunition carried. Cavalry especially should be plentifully supplied with ammunition, as it will often find itself in a situation where it will have to engage in a fire fight without a hope of replenishment of ammunition. It is true that in such cases we might easily send along an infantry ammunition wagon lightly loaded, or we might from the very start attach small arms ammunition columns to the larger bodies of cavalry. But this system is out of the question for small bodies and for patrols. We can count with certainty only on the rounds carried by the individual trooper, for cavalry will often have to leave its trains behind. No trooper should carry less than 100 rounds on his person and horse.

SOME NOTES ON "REITERDIENST."*

By LANCER.

MUCH importance is attached on the Continent to the views of the veteran General von Bernhardi and so a success was achieved in England by the translation of his "Cavalry in Future Wars," that widespread interest naturally attaches to his latest publication, "Reiterdienst," of which an excellent translation by Major G. T. M. Bridges, 4th Dragoon Guards, our Military Attaché at the Hague, is already in the press.

The General joined the Army in 1869, at the age of 20. He gained the coveted Iron Cross in the 1870 campaign, and subsequently served as General Staff Officer of the 1st Division, and as Chief of the Staff of the XVIth Army Corps. For some years after 1897 he was head of the Military History Section of the Great General Staff. In 1900 he was given the 31st Cavalry

*From the British Cavalry Journal. The title of General von Bernhardi's new book, Reiterdienst, meaning Cavalry Service, has been given the title of "Cavalry in War and Peace" by Major Bridges in his translation.

Brigade and in 1904 promoted to the command of the VIIth Army Corps. He has thus had a varied and thoroughly practical experience with troops, and his views in consequence acquire additional weight. He has been distinguished throughout his career for originality of thought and tenacity of view, and even in retirement continues to work in the service of the arm.

General von Bernhardi in his earlier work dealt, theoretically, with the employment of Cavalry; in the present one he treats of it from a practical point of view and puts his finger on many errors that exist in the present system of training.

In the introduction the Author states that the improvements in the firearms of all three arms and the size of modern armies have reconstituted the *rôle* of Cavalry, and extended its sphere of usefulness in certain new directions. He frankly admits that the influence of Cavalry on the field of battle has diminished and that the mounted combat of masses will be the exception. On the other hand, the strategic *rôle*, consisting of reconnaissance and raids, has greatly increased in importance. Early information will be of greater advantage than formerly, as movements of large forces have to be initiated long beforehand, and dispositions once made can subsequently be altered with difficulty.

The subject is arranged in three main parts. The first deals with the strategic and tactical action of Cavalry in war as a basis for training; the second gives a review of the peace training which the Author considers practical; in the third certain questions of organization are discussed.

PART I.

(*a*) The action of Cavalry acting independently will consist mainly of the three following duties:—

Reconnaissance. Screening. Raids.

Reconnaissance will be carried out by reconnoitring squadrons, with patrols pushed out from them. He points out that arrangements must invariably be made to relieve these squadrons and patrols, and that the probability of having to alter the line

of relay posts must be kept in view when organizing the transmission of reports and orders. He warns Squadron Leaders to be sparing in the number of patrols they send out; but emphasizes that the desire to spare patrols must never result in sending cyclists to reconnoitre. The latter must be reserved for carrying back reports, and for forming relay posts, for which they are admirably adapted.

The art of scouting lies in the choice of suitable commanding positions from which observation with field glasses can be made—preferably at mid-day, when columns are sure to be on the move.

In peace maneuvers scouts are prone to ride too close up to the enemy, and are driven off without having effected that quiet observation which is needed. At night, patrols must avoid large farms or villages; they must keep watch on the inhabitants of any building they stop at, and always have a back way of escape reconnoitred. It is best for patrols to lie up in a wood, at some distance from where their forage and victuals have been commandeered. Relay posts should be pushed forward to junctions of main roads, with a few mounted men to protect them.

To the Divisional Cavalry falls the task of tactical reconnaissance, and of screening. The latter must be actively carried out, if possible with the aid of cyclist troops to drive back the hostile reconnoitring detachments.

As regards raids, the Author predicts greater attention will be paid to such undertakings in proportion as the usefulness of Cavalry on the battlefield diminishes. The size of modern armies precludes their living on the country, and they will be dependent on their communications for food, as well as for ammunition. In the later stages of the campaign, opportunities will assuredly occur, and a strong force of more than one Cavalry Division, strengthened by Cyclist Battalions and R. E. with bridging material, will be required to carry out a really effective Raid.

(*b*) The tactical action of Cavalry may be divided into:—

The Cavalry fight.

The co-operation on the battlefield with the other arms.

Mobility being the chief characteristic of Cavalry and the root reason of its existence, anything that limits this mobility is opposed to its special qualities and its purpose. For this reason the mounted attack should be its recognized form of attack. Not only is it swift in its decision, but complete in its effect.

Where large forces of independent Cavalry are face to face, the combination of mounted and dismounted Cavalry in co-operation with artillery will probably be employed. In the absence of sufficient information, both sides will employ dismounted action in order to gain time for reconnaissance. After the combat, the beaten side will certainly employ the rifle to cover their retirement. The Author's subsequent suggestions for the dismounted action of Cavalry are founded on Infantry tactics and entirely opposed to the teaching of our Cavalry Training.

He favors immobile led horses left far away from the firing line; and holds that Cavalry must make long advances on foot, distributed in depth with supports to reinforce, which will culminate in an assault. He disapproves, however, of the substitution of the bayonet for the sword.

On the main battlefield the Cavalry should be massed on the flank and in front of the main body.

In co-operation with the other arms the Author warns the Cavalry not to wait for opportunities for mounted attack, but to seize every chance of engaging the enemy with the rifle.

He suggests that vigorous action against the enemy's flank and rear, against his Ammunition Columns and Heavy Artillery, would probably have greater effect than attack with doubtful success on his Infantry line.

History gives few examples of a satisfactory pursuit, and for this reason, that the victor has had probably a strenuous day, and that ammunition, food, and water are lacking. A pursuit must be early foreseen and preparation made to carry it out. Men and horses must be fed betimes, forage carts taken, and at all costs the night after the battle must be made full use of.

In considering certain tactical questions, the Author dwells on the relative advantage of Echelons and successive lines. He favors forward Echelons either for offensive or defensive action, especially when one regiment is acting independently; and advocates some extended formation for crossing zones which are,

or may be expected to be, swept by fire. If the fire comes from the front, columns with small frontage would be useful, and if from the flank, line formation is indicated. He backs the Cavalry who ride knee to knee, armed with the lance, against Cavalry who ride in looser formation and have not the lance, even though they may be numerically superior.

PART II.

PEACE TRAINING.—All peace training must be directly preparatory for war. The principles mentioned in Part I. afford the foundation on which the system of training will be built. Great importance is attached to the systematic schooling of the horse, to fit him to take his place quietly in the ranks and to remain under perfect control at the faster paces; and the individual training of the man to make him efficient in the field, a bold horseman, a good shot, and to give him quick and independent judgment when left to himself.

Training in riding and in musketry should be carried out hand in hand from the very beginning.

Recruits can best receive their early education in the Riding School, but remounts should be trained as much as possible in the open country. Judging distance is of such importance nowadays that more attention should be devoted to it, and the system of passing word down the firing line should be practiced frequently.

Officers should receive theoretical as well as practical instruction, which might be grouped under the headings of—

1. Strategical lessons—to enable them to realize the movements of a modern army on which they, as Patrol Leaders, would be called upon to report.

2. Cavalry history—to give them an insight into the difficulties of actual warfare, to compensate for lack of war experience.

3. Strategic and tactical employment of Cavalry with practical lessons in the various means of transmitting information.

This instruction is completed by means of Staff Tours—

more practical than war games—while the duties of patrol leading can be taught by regimental "Patrol rides." These should be progressive, embracing all the various forms of patrols, and be supervised by the Brigadier.

Non-commissioned officers should receive instruction on a similar system of Squadron Rides supervised by the Commanding Officer.

The author deals next with the culminating forms of peace training—Cavalry Reconnaissance Exercises and Maneuvers. Among the many points which he mentions in connection with them are the following:

The length of column of a skeleton force should be marked by flags, to give patrols practice in estimating troops.

Full amount of transport should always be furnished, as in this lies one of the great difficulties of leading large bodies of Cavalry.

Too many maps should not be issued, as they would not be available in an enemy's country.

Rest days must be allowed for horses to recuperate.

Officers should attend a course of instruction as umpires in order that their decisions should be uniform and have unquestioned authority.

The squadron forms the tactical unit and the foundation on which the successful leading of Cavalry depends. The greatest attention must, therefore, be paid to its training, both mounted and dismounted, stage by stage.

The test of a trained squadron is that every horse should move square to the front, keeping the direction ordered, at the correct pace. That every horse should move with his neck bent and back arched, and go with an easy feeling of the rein. More importance should be attached to long steady movements, keeping correct pace and direction, than to quick changes from one formation to another, which in war will seldom be required.

It is useful for the squadron to practice following its Commander, keeping all the time under cover, with only general orders from him.

When working in the regiment, considerable freedom should

be allowed to the squadron, but it is of the greatest importance that it should be kept well closed up as a compact unit.

During drills the various Commanders should regularly fall out to give subordinates opportunities of leading.

PART III.

Part III is very short and deals with the organization of the Cavalry. The author considers that the increase of Cavalry, though necessary, is financially impossible; that the ideal Division consists of three Brigades each of three regiments, and he advocates the addition to it of Cyclist Battalions and motor transport.

He regards an Inspector of Cavalry with a proper staff as essential to the uniform and systematic training of the Cavalry, and suggests that in close conjunction with the General Staff he should observe what improvements are effected in other countries and see that any information likely to be useful is passed on to the troops.

In conclusion, the author warns his brother officers against sticking too closely to old tradition and exhorts them to weigh the altered conditions of the present without prejudice, and, above all, avoiding false situations, to aim at such training as will fit the Cavalry for war.

It is not possible within the limits of this review to do more than touch on special points of interest; but those who cannot study the book in the original will find the translation eminently readable; and I would strongly recommend it to every officer interested in his profession.

SHOCK TACTICS.*

To the Editor of the Spectator.

SIR: The arguments for and against *armes blanches* (see *Spectator,* May 21st) are at any rate available, together with the facts on which they rest, and may be weighed up. Against the use of them we have the undeniable and prominent fact that while the power of modern firearms has increased enormously in range, accuracy, rapidity and flatness of trajectory, the power of the man on the horse armed with sword or lance has not increased at all. It therefore follows that, unless circumstances can arise in which all these qualities are nullified, the *relative* importance of *armes blanches* to firearms has decreased; circumstances may arise in which range and accuracy lose their importance, especially against *small* easily concealed bodies with *armes blanches,* but rapidity of fire and flat trajectory remain. The advocates of *armes blanches,* however, maintain that modern firearms produce the very conditions which are most favorable to the effective use of *armes blanches—viz.,* demoralization, nervous strain, nervous exhaustion. Long extended lines of infantry, they say, which have been exposed perhaps for hours to modern rifle fire are in a condition of nervous strain which lays them particularly open to the panic effect of sudden cavalry attack on a flank threatening to roll up the whole line. Naturally one is suspicious of an argument which, based on the admitted demoralizing effect of modern rifle fire, proceeds to deduce a case for developing the use of *armes blanches;* one looks naturally for a fallacy, and finds at once what looks like one in the assumption that the attacking cavalry will not itself become very rapidly demoralized by the same agency which has so rapidly strained the nerves of the far better concealed infantry. Evidently, now that the field of battle is so vastly extended, the distance cavalry will have to traverse in order to accomplish results comparable with those attainable a hundred, or even thirty, years ago will be very great, and this must diminish the chances of success.

*From the Spectator, London, of June 4, 1910.

Nevertheless many practical soldiers, experienced in war as well as in the not negligible object lessons afforded in peace maneuvers, are convinced that, owing to oversights of commanders, faulty intelligence, defective training of infantry to meet sudden onslaughts of cavalry, there are still likely to be opportunities for well-timed cavalry attack, producing overwhelming and disastrous consequences to the troops attacked. The practical question is not whether cavalry should be trained to the use of *armes blanches* on the one hand, or of firearms on the other, but whether it should be trained wholly with a view to producing fire effect, or to be able to use either fire or shock tactics at the discretion of the commander. The objections that may be urged against the latter course are three—first, it will be said that it involves the drawback of arming every man with lance and sword and adding to the weight carried; secondly, that it involves great waste of time in training large bodies of cavalry to the high pitch of rapid maneuver which it is essential for cavalry to attain if it is to practice shock tactics successfully against hostile cavalry; thirdly, that it will certainly lead to the employment of shock tactics in war when they are not suitable, and that it will delay development of cavalry tactics in the direction which is bound to be taken in the future. Nevertheless, it seems the most sensible plan to give the commander the opportunity of using the method that seems to him best, while at the same time taking care that everything possible is done in peacetime to give him a thoroughly intelligent appreciation of the conditions of the game. I am, sir, etc., E. H. B.

[Our correspondent has stated with admirable moderation what we believe will prove to be "the better opinion." Cavalry should be usable, and used, for all military purposes for which men on horses can be used. It is surely a mistake to talk as if shock tactics were the only possible form of mounted tactics. Horse soldiers, when the ground is favorable, will, we believe, often gallop a position in extended order, closing in only when they are actually on their enemy. These are not shock tactics, any more than they are dismounted tactics, but they may be very good tactics for all that. It is foolish to talk as if horse soldiers had no choice but riding knee to knee in a black mass or fighting on foot.—ED. *Spectator.*]

CAVALRY TRAINING.*

From the *Journal of the Royal United Service Institution.*

Leadership.

THE importance of constant practice in the *execution* of tactical problems, with actual troops to handle, against a marked or other enemy, does not appear yet to be fully realized. In order to train our leaders for war it has long been recognized that systematic training must be given in (1) correctly appreciating tactical situations; (2) coming to rapid decisions; (3) translating decisions into short cavalry orders, and up to this point instruction can be given satisfactorily at war games, staff rides and tactical tours. But it is essential that instruction should not cease here, for the real test and value lies in the final stage, the *rapid, common-sense execution of these orders in the field.* Moreover, it is in the execution that the suitability or otherwise of the orders and the standard of training of units can be properly gauged. Brigade and divisional maneuvers and the training of large, mixed forces last but for a short time, and offer to but few of the officers attending opportunities for practicing themselves in dealing with concrete situations such as will face them in war. The point must be borne in mind and insisted on in troop, squadron and regimental training all the year round.

Throughout all tactical operations, it is the task of the divisional commander to combine the efforts of his brigades and his horse artillery; that of each brigadier to combine his three regiments and his brigade machine-gun unit; that of each regimental commander to get the maximum coöperation between his three squadrons. The proper *chain of responsibility* must invariably be adhered to, *i.e.,* brigadiers must deal with regiments, regimental commanders with squadron commanders, squadron commanders with troop commanders, and so forth. If, for instance,

*Extracts from the report of Major General, Sir D. Haig, K. C. V. O., C. B., on the conduct of the Cavalry Divisional Training of 1909. Part III—Comments on the Conduct of Operations.

the brigadier endeavors directly to control squadrons, he will lose his grip of the situation as a whole. His work is cut out for him in dealing with his three regiments and machine guns, operating possibly over a very extended area.

Although mobility, rapidity and surprise are fundamental factors in all cavalry tactics, these must not be confused with hurry and haste, *i.e.*, lack of method and confusion. Important decisions have frequently to be made on the spur of the moment, but no commander should order any movement without a clear idea in his mind as to how that movement is to be carried out, even if there be no time to explain his intentions to other than his own immediate staff. The extent to which liberties can be taken in the rapid issue of a limited number of short orders without thereby forfeiting coöperation depends upon the degree of mutual understanding existing between the commander and his subordinates, and upon thorough agreement amongst all upon questions of tactical principles—and peace training must aim at developing this understanding and agreement.

Reconnaissance and Protection.

More practice in reconnaissance is certainly needed by all ranks. The formation and action of patrols under varying conditions of grounds and enemy calls for more thoughtful and methodical consideration.

The following principles were not always understood, and require to be thoroughly impressed upon all ranks:—

(*a*) Patrols should move well *concentrated* under the leader, and must, in their turn, send out the necessary scouts to provide for their own security.

(*b*) It did not appear to be understood that the principle of moving rapidly *by successive bounds, i.e.,* from position to position, or point to point, and halting at each whilst the next is reconnoitered, applies to patrols and scouts as well as to larger bodies. Patrols may halt as long as necessary behind the crest of a ridge or under cover, but when once they move on they should do so at a rapid pace, having first clearly decided in their own minds which is the next position they are going to. As a rule, the more open the ground the faster they should move.

(*c*) Patrols and scouts employed for protection should proceed to certain *definite points,* or localities, where the enemy may be concealed, *e.g.,* woods, villages, folds in the ground. It is useless for them to wander aimlessly along at a fixed distance in front of the force they are protecting; they must precede it at a sufficient distance to prevent it from being surprised by fire at effective range. In spite of these principles being clearly laid down in our regulations, scouts were often noticed meandering at a walk over open ground, with apparently no objective, towards a hill behind which an enemy lay concealed; or riding not more than 40 or 50 yards from the troops they were supposed to be covering.

(*d*) Scouts sent out to examine a particular locality should return to the body from which they are sent *as soon as their mission is finished,* unless otherwise directed. Unless this principle is strictly insisted upon the members of a patrol soon become hopelessly scattered, and method and unity of purpose vanish, each individual becoming engrossed in minor enterprises of his own making.

(*e*) A tendency still exists on the part of patrols and small detachments to resort to dismounted action on perfectly open and exposed ground, thereby delaying their reconnaissance work and placing themselves at the mercy of any superior body of mounted troops who may gallop down on them. Again, reconnoitering patrols frequently dismount to climb to the top of a hill when it would be quicker and safer to remain mounted and look over the shoulder of the hill.

The *rôle* of *contact squadrons* did not always appear to be fully understood, and the results obtained were not altogether satisfactory.

Schemes involving reconnaissance work over a wide area of country and lasting for several days on end must be more frequently undertaken in order to develop and practice a *methodical system* of (*a*) acquiring information and (*b*) rapidly transmitting that information to all concerned.

The former, the acquisition of information, depends only to a limited extent upon the skill of the individual scout or patrol leader: success depends upon other factors also, such as the decision as to how many reconnoitering detachments to employ

(always the least possible for the end in view), in what directions and of what strength, upon the nature and detail of the instructions given, and often upon the extent to which their tasks are facilitated by supporting detachments (contact troops or squadrons), or by the movements of the main body itself. Time spent in elaborating a definite and combined scheme of reconnaissance and in fully instructing all concerned as to its execution will seldom be time wasted.

Similarly, the *transmission of information* from the scout who actually acquires it to (*a*) other reconnoitering detachments with whom he may be working in coöperation, (*b*) to his main body, and (*c*) thence to the army commander and to commanders of neighboring columns, depends upon a methodical system, the responsibility of maintaining which must be shared by the reconnoitering detachment, and by the authority which sends it out. The acquisition of information is often a simple problem compared with this difficulty of transmitting it rapidly back to headquarters; leaders of patrols and contact squadrons should bear the point in mind during their advance, and should try to provide against any risk of messengers failing to return. It is often necessary to fight in order to take valuable information rapidly to the rear, and in some cases it may be necessary to employ units of considerable strength for the purpose of insuring its safe transmission.

Although the onus of getting information back to the commander lies, as a rule, upon the detachments, yet it is the duty of the former to lighten their task in every possible way. He may often, as indicated in Field Service Regulations, paragraphs 91-93, find it advisable to send out a connecting detachment to hold out a hand, as it were, to patrols in front.

The transmission of information by *dismounted* men when a mounted man cannot escape detection should be more frequently practiced.

Omission to note the *time and place of dispatch* frequently rendered useless what might otherwise have been valuable information. Patrol commanders should remember that the headquarters staff of a large body of troops can rarely know what actual detachments are out in front, so that a message merely signed by the sender might, as far as the recipient knows, come

from any point in the field. In this connection the desirability of reintroducing the printed headings in our official message books is a point for consideration, in order to jog the memory of those who forget at maneuvers and are even more likely to forget in war.

The *names* of at least the divisional and brigade commanders should certainly be known by every man in the ranks.

The system of security was on several occasions retained too near to the body covered, having regard to the increased range of modern firearms, with, in some cases, somewhat disastrous results. Excepting when circumstances justify abnormal risk being taken the tendency to neglect the regulation methods of providing for security, in order to avoid delay thereby involved, must be checked.

The importance of protecting columns moving *along roads and through inclosed country* by picketing all approaches from the flanks was not always realized; the tactical value of all neighboring cross-roads in these circumstances should be borne in mind. Compare the system of picketing the flanks in mountain warfare. It should be recognized that the normal rate of progress for any body of greater strength than about one regiment must be reduced in inclosed country when in the vicinity of the enemy, if its safety is to be assured.

Intercommunication.

The principles so clearly laid down in Field Service Regulations, Part I, were not always carried out to the full, with the result that on frequent occasions the higher commanders lost control of their units and coöperation suffered. The problem of intercommunication is always a difficult one, requiring forethought and methodical working. Breakdowns are usually due to lack of care in selecting the method of transmission, failure to send important messages by more than one method or route, too frequent changes of the central receiving post, or actual defect in the mechanical apparatus, such as wireless.

Although the responsibility for keeping superiors informed of the progress of events rests primarily upon subordinates, success or failure will very largely depend upon the *clearness of instructions* issued by the former and upon the maintenance of

a good *methodical system for the reception of messages.* Again, the responsibility for the dissemination of information regarding the general situation and objective of the commander rests upon the latter's staff; and the better subordinates are kept acquainted with the situation the better will be their coöperation and the more relevant their reports. There must, however, be mutual coöperation in this respect, *i.e.,* it is not sufficient only to pass orders or instructions downwards, but subordinates must, when necessary or advantageous, pass their requirements upwards.

As often before, these operations proved the limited amount of reliance which can be placed upon *visual signaling* for cavalry work, owing to the time it takes and the frequency with which it is rendered useless by bad weather. It is to be hoped that the new acetylene lamps, which it is understood are to be tried, and which are said to be able to signal many miles by day and night, may effect an improvement.

The present system of coding signaling messages is too elaborate for rapid cavalry work in the field, and it is suggested that an abbreviated system be devised, at any rate for use on emergency. Place, time, etc., of the original messages were apt to get confused in the course of transmission with similar items connected with the working of the signaling stations; the latter ought to be quite distinct from the text.

The necessity for *tactical training of signalers* requires emphasizing. The test of efficiency should not depend only on the technical skill of the men, but also on the ability of those in command of the signaling detachments (officers and non-commissioned officers) to make the best practical use of the means at their disposal to establish and maintain the communication required. Signalers should be practiced more frequently in an extended scheme over a wide area of country; "tactical rides" for cavalry signalers are valuable, and easily and cheaply arranged.

Cohesion; Pace and March Discipline.

In order to obtain good order and cohesion at the point of attack, commanders must adjust their frontages proportionately to their strengths, so that there shall always be a rear rank available to fill up intervals in the front line. When there are less

than 24 men in a troop it should be formed on a 13-file front. Troop and squadron leaders have to keep their eyes to the front so that it becomes the special business of the serrefiles to supervise the maintenance of good order and cohesion in the ranks, and, during the advance to the attack, to see that men in the rear rank fill up immediately any gaps which occur in the front rank.

The principles laid down in Section 143, Cavalry Training, 1907, require more constant consideration. Good order and cohesion can only be maintained if the regulation paces are strictly adhered to. The process of making any body of cavalry efficient in preserving continuity and uniformity of pace is certainly tedious, but failing these two requisites, the best fighting value of the arm will not be obtained. Maneuvering does not consist only of correct and rapid drill evolutions. The situation will often involve winding cautiously through difficult ground, climbing steep hills, etc., and then deploying over broken and uneven surfaces. Uniformity in the pace of maneuver throughout brigades is essential. Officers and troop leaders should be more frequently practiced in timing the pace of their horses with a stop watch over a measured distance. The larger the body of troops and the longer the column, the more important is correctness in pace. During changes of direction or formation the leading units must steady the pace and so assist the units in rear.

The fast paces are always extravagant in horse power, and a tendency which now exists to gallop prematurely or without sufficient justification should be checked. Galloping by large bodies can be rarely necessary for other than two main reasons: (*a*) when advancing under fire, in which case every opportunity should be taken of available cover *en route* to re-form ranks and ease the horses, or (*b*) to effect surprise. In normal circumstances the more rarely a steady trot is exceeded the longer will mobility and rapidity as a whole be maintained. Trotting faster than the regulation pace should very rarely be permitted; if any increase of pace is required the gallop should be ordered.

The rapid *passage of obstacles* in good order, unit by unit, requires constant practice, and the following principles must be more carefully observed: (*a*) that it is almost invariably better with a force of greater size than a squadron to steady the pace and keep well closed up, rather than increase the pace and so risk

disorder, and (*b*) that in crossing a defile each squadron should pass the defile at a trot, and re-form as quickly as possible as soon as its rear is clear; any distance lost from the leading body should be made up by moving at a gallop after the squadron has re-formed.

March discipline requires to be more strictly maintained among all units, especially as regards transport. Civilian drivers must be taught the necessity of maintaining the strictest military discipline, and to understand the importance of keeping closed up and leaving one side of the road clear.

More practice in marching, especially on the roads, by night as well as by day, is required; on several occasions there were noticed those concertina-like movements in columns which are so distressing to men and horses, and which, in the presence of an enemy, might easily cause an operation to miscarry.

The Attack.

The *rôle* of cavalry in coöperation with the other arms on the battlefield requires more attention.

The magnetic influence of the opposing cavalry is apt to override more important considerations and to lead to engagements on other than vital issues. When the crisis of the decisive battle arrives, cavalry should be operating in close combination with those troops which are striking the decisive blow, and be ready to exploit and prolong the effect of that blow, which cannot usually be achieved if the cavalry is far away on a flank or endeavoring to work round to some distance in the enemy's rear. In order to train cavalry to act effectively in such situations, more time should be devoted to problems such as the methodical selection and occupation of positions of readiness in the vicinity of attacking infantry; selection of covered lines of advance, by which movements can be made, concentrated or unit by unit, towards more advanced positions; rapid deployments and attacks mounted upon guns or extended lines of infantry, always under a scheme involving a tactical idea; the "rally" beyond and out of range of the fire of the enemy thus attacked; followed by a second attack, probably from or in another direction, or by a movement in pursuit, or by a return under cover to the point from which the attack was originally launched. A definite plan, a

methodical arrangement of means to insure combination of effort, and other essential factors of success are sometimes forgotten in these problems.

The principle of advancing at the fastest pace whilst under fire, but of periodically steadying the pace, or even halting, in any available cover does not appear to be fully understood. In crossing slopes or crest lines exposed to fire it may often be advantageous to do so unit by unit at an increased pace, each unit opening out if necessary, galloping rapidly over the exposed ground and halting under cover beyond until the regiment or other body has been re-formed.

This method of advance is quite distinct from that required when not under fire and advancing to attack cavalry mounted. In the latter case, unless there is a possibility of surprising the enemy, the longer a steady trot can be maintained the better, and in any case the charge should only be taken up at the most 50 yards from the enemy, for in the cavalry encounter cohesion is of more importance than pace.

Dismounted Action.

The principles which should determine the choice between mounted and dismounted action require to be more thoughtfully considered. Small units have been seen on several occasions to dismount on open ground, when mounted action was the only sound course to adopt. On the other hand, squadrons have been seen to remain mounted in inclosed country when under fire at close range of dismounted men.

Officers appear to have hardly yet realized the *essential difference in the principles* which should govern the attack by cavalry dismounted from those on which an infantry attack is conducted. Weight and depth are essential in the infantry attack, fire being employed to facilitate movement in the direction of the enemy with the ultimate object of coming to close quarters with the bayonet. Cavalry, on the other hand, normally develop shock action effectively only when mounted, and usually lack the numbers, depth and weight required to act decisively on foot. They must, therefore, as a rule, put the largest available number of rifles in the firing line at the outset, endeavor to retain their mobility throughout, by keeping their horses as close to the firing

line as possible, and make the most of it by opening sudden bursts of fire of the greatest possible intensity from unexpected positions.

Different portions of the attack should push forward in turn, taking as much advantage of the ground as they can, covered by bursts of fire from adjoining bodies. Intimate coöperation of this nature can be secured only by a well-organized system of intercommunication, mutual understanding, and skillful use of the ground.

Fire should be concentrated on successive portions of the target—a desultory fire disseminated over a wide front is of little value, and decisive results will be obtained only by sudden outbursts of fire concentrated on definite objects. In order to retain mobility, the horses must be as close up to the firing line as possible.

A mounted reserve must always be at hand to guard against the unforeseen, and to take instant advantage of favorable opportunities for decisive action, *i.e.*, mounted attack, created by the fire of those dismounted.

Coöperation of Horse Artillery with Cavalry.

The soundness of the principle enunciated in Field Artillery Training, Section 87 (iii), paragraph 3, was fully confirmed. Horse artillery must not be tempted by the chance of gaining a temporary and unimportant advantage to advance prematurely into action. Such tactics offer the enemy an opportunity of immobilizing the guns thus prematurely deployed with a fraction of their artillery or machine guns, whilst the hostile cavalry and the remainder of their artillery are at liberty to maneuver in another direction out of the zone of their adversary's fire.

The most propitious moment for the deployment of all the horse artillery in action is when the cavalry have completed all their preparations, and are ready to deliver the attack. Till then the guns should be held back in positions of readiness so as not to disclose their presence to the enemy until the latter has finally committed himself and lost his power to maneuver beyond the zone of their fire.

During an advance, prior to attack, across undulating country with well marked ridges, it is often advisable to divide the guns, leaving one portion behind in readiness for action whilst

the cavalry, accompanied by the remaining guns, makes good the next ridge. For if all the guns are left behind, the cavalry, after reaching the next ridge, are temporarily without artillery support; whilst if all the guns accompany the cavalry the encounter may take place before any of the former can come into action.

When the ground is comparatively level and there are no covered approaches by which the hostile cavalry can gain access to the flank of our own cavalry, it is advisable to keep the whole of the horse artillery and machine guns on one flank. When the two latter eventually come into action their lines of fire will then be approximately parallel, while the cavalry is free to maneuver without fear of masking this fire. On the other hand, if the ground is undulating with high ridges and deep hollows, it is sometimes advantageous to place guns on each flank so as to deny to the hostile cavalry these approaches.

The placing of the horse artillery in the center of the cavalry is not recommended. In such a position their fire is generally masked at the most critical period of the encounter. A more suitable position is in echelon well forward on a flank, as laid down in Field Artillery Training, Section 87 (iv). Placed thus, there is less liability of their fire being masked, and with their outer flank secured by patrols they are sufficiently in touch with the cavalry to dispense with a special escort.

The question sometimes arises, when other considerations are equally balanced, whether the cavalry or the guns should move rapidly out to a flank. In such cases it is the guns which should be sent. Once in action, their horses have time to recover their wind, while, on the other hand, it is of vital importance that the cavalry horses should be kept as fresh as possible for the charge.

When in action the flanks of the guns and any dead ground in front are best protected by machine guns, or, if none are available, a section of horse artillery or even a single gun can be used for the purpose.

The "Rally." Replacement of Casualties.

The "rally" action after an action, mounted or dismounted, and against an enemy mounted or dismounted, requires careful thinking out and constant practice. During peace training, oper-

ations are rarely worked out to a logical conclusion, and too often cease with a final charge; so that the problem is not faced of what is to happen *after* the enemy has been routed, or the position captured or galloped through; or, again, what is to happen should the attack fail.

Similarly, practice is necessary in the rapid assumption of command after casualties amongst leaders. If casualties amongst leaders were more frequently practiced the overwhelming importance of method and system in the conduct of all operations would be better realized. The practice of casualties also tends to bring home to all ranks the necessity to maintain reserves.

Overloading of Horses.

A regrettable tendency has been observed to overload horses, contrary to regulations. Men were often seen carrying line gear, mallets, axes, waterproof sheets and buckets. This is a matter of discipline, and the regulations embodied in the Field Service Manual should be rigidly enforced.

Officers.

The material is excellent. All four brigadiers and their staff officers are able cavalry leaders, in whom I have every confidence. I think that between them, myself and my own staff there existed that sympathy, confidence and mutual understanding which is the basis of success in any cavalry operation. Their efforts have been well seconded by the loyal support of the regimental commanders, the energy and zeal of the squadron officers, and the cheery endurance of the men.

I have been particularly struck by the keenness displayed by many of the young officers, who do not hesitate to gallop their horses to a standstill in order to bring in important information in good time. This recalls the important question of *officers' chargers*, and the necessity for their being mounted on suitable horses and in adequate numbers. At present we do not compare favorably in this respect with the French and German Cavalry, and it is hardly necessary to point out what false economy this must prove.

Unless a cavalry officer is a good horseman he is useless; cavalry officers must therefore be constantly in the saddle, and

should be encouraged to ride at least several hours a day throughout the year.

I attribute great importance to young officers being encouraged to hunt and play polo, and would urge that they should be helped to do so in every possible way. These pursuits have a very *real value as training for war*, and it is particularly desirable that officers with private means should be encouraged to spend their money in this way rather than in buying expensive motor cars and similar luxuries which have a precisely opposite tendency.

Non-Commissioned Officers and Men.

It is gratifying to see the improvement both as regards class and intelligence that is apparent in the non-commissioned officers and men. The ranks of our cavalry are now filled by men who, although somewhat younger, will bear comparison with the pick of Continental armies.

Royal Horse Artillery.

The intelligent coöperation of the horse artillery in all the operations of the division has been a very satisfactory feature, and reflects great credit on Colonel Fanshawe, who acted as my C. R. A. I think we have proved that what is perhaps the most difficult problem in war, *viz.*, the well-timed coöperation of guns and cavalry, is a practical proposition, which *can* be solved by mutual understanding and adherence to sound principles.

Billeting.

The weather on most days during the training was abominable. Fortunately little sickness occurred amongst the men, but, although cheerfully endured, the discomfort was very great, and the loss of condition amongst the horses was due far more to this than to the amount of work imposed upon them. Kits and equipment also suffered considerably.

In this connection I would urge the importance of introducing, gradually perhaps, some system of billeting the troops during maneuvers. Considerable expense would be saved to the State, and, judging from the large experience of our Continental neighbors, the system would not be nearly so repugnant to the

civilian population as is generally supposed to be the case. Even bad billets secure greater comfort to the troops than a night in the open, and give them, moreover, opportunities of putting their weapons, equipment and clothing in order. In the case of mounted troops especially any kind of shelter is preferable to none at all.

Should our army ever be called upon to operate in a civilized theater of war, billeting will certainly be resorted to. It is, therefore, of great importance that commanders, staffs and troops should annually obtain *actual practice in all the arrangements connected with this duty.* The matter is a much more difficult one than is generally realized, and involves numerous problems of time, space, capacity, allotment, subsistence, intercommunication, sanitation, etc. Billeting, in fact, is an operation which can no more be learned by theory only than can any other operation of war.

WAR AND THE ARME BLANCHE.*

THE GENERAL STAFF'S VIEWS ON MR. CHILDERS' BOOK.

IN this book Mr. Erskine Childers maintains, and claims to have proved, that for mounted troops in modern war the *arme blanche* is "as dead as the dodo." The essential points of the theories he advances are that the rifle is always the master of the sword; that although the latter may be of use on some occasions, those occasions are very few, and that even then the rifle can be used instead of the sword, with better results; that it is as impossible for mounted troops to become efficient in the use of both rifle and sword as it is for a man to serve two masters; and that the only way to insure the efficient training of our cavalry in the use of the rifle is to deprive it of lance and sword altogether. Mr. Childers favors bold offensive action, but al-

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never with the object of using cold steel. Cavalry charges he ways with the object of overwhelming the enemy by fire and believes in, but not the charge as now understood; in his view cavalry should charge to "within 5, 10, 50 or 100 yards" of the enemy, and then shoot him down, either from the saddle or dismounting to fire. In the term "cavalry" he would include all mounted troops, maintaining that all should be armed alike and act on the same principles. Fire from the saddle should be freely used, even, it would appear, when moving at speed, as in pursuit.

Mr. Childers bases his views mainly on the experiences of the South African War, but he quotes the Russo-Japanese War in confirmation, and he claims that the American Civil War and the campaigns of 1866 and 1870-71 also illustrate the truth of his contentions. The fact that a decided majority of the leaders of military thought throughout the civilized world are believers in "the terror of cold steel" is an argument to which he attributes no importance. He is quite satisfied that their judgment is misled either by the glamour of cold steel or by a mistaken belief that the South African War was abnormal, a view with which he is in entire disagreement.

Before discussing Mr. Childers' theories, it will be well to consider the value of the evidence on which they are based. It has been claimed that his arguments are historically correct. This claim cannot be admitted. He quotes historical facts, certainly, but the deductions he makes from them are his own. Facts, as a great lawyer has said, "cannot lie, but they can and often do deceive." The point which the reader of "War and the *Arme Blanche*" has to decide is whether, in this case, they have deceived Mr. Childers or those who differ from him. Judging by the official training manuals, the ruling military authorities of every civilized nation are numbered amongst the believers in cold steel. Amongst them are many able, earnest and experienced soldiers, by no means all cavalrymen. They have as deep a knowledge of historical facts as Mr. Childers has. They have even more at stake to induce them to weigh deductions carefully, since they may be called upon to act on them at any moment. They have more practical knowledge of human nature in war to guide them in drawing conclusions from history, and human nature in war is a consideration on which the practical applicability

of all military theory depends. Remembering that it is deductions from facts that are in dispute, and not the facts themselves, we cannot think that any impartial reader will be prepared to follow Mr. Childers in throwing the opinions of such men aside as being biased and worthless. We claim no infallibility for them, but neither do we concede any to Mr. Childers. We cannot agree that Mr. Childers has established his charge of undue bias in favor of the sword, and we cannot see that he is any less open to a charge of undue bias in favor of the rifle. Having said so much as to the value of the evidence to be weighed, we may now turn to the matter in dispute. A careful perusal of "War and the *Arme Blanche*" leaves us under the impression that the difference in opinion between Mr. Childers and our Training Manuals is by no means so great as he seems to think it is. His views on the value of vigorous offensive methods and on the combination of fire power with mobility are, up to a certain point, in agreement with "Cavalry Training." No one is likely to deny—"Cavalry Training" certainly does not do so—that the general principles of fire action are the same for all mounted troops, although the degree of skill with which they may be able to employ those principles must be expected to vary with the duration and thoroughness of the training they have undergone. No one can deny that favorable opportunities for the use of the *arme blanche* are not numerous in modern war as compared with the number of opportunities for using the rifle.

Mr. Childers is not one of those who consider it impossible for cavalry to charge home, under favorable conditions, in the face of modern rifle fire; and he clearly recognizes the need to charge home in order to force a decision. So far, therefore, no great principle seems to be in dispute. The first real point of difference that we can find between Mr. Childers and "Cavalry Training" is his statement that when cavalry has charged home it will always find the rifle a more effective weapon than cold steel. The next is the statement that cavalry cannot be trained to efficiency in both rifle and sword. If the first of these two statements be true it is unnecessary to examine the second, since there would obviously be no further need for the sword if the rifle is always more effective at close quarters. If the second theory be true, we agree that the rifle is so much more generally

useful than the sword that the latter should be abandoned in its favor. These two questions are, therefore, worthy of very close consideration. A decision on the first of them seems to depend a good deal on the value of fire from the saddle. If it is really possible effectively to use the rifle from the saddle at close quarters, we can believe that cavalry would soon throw away sword and lance in war. If it is not possible, then mounted cavalry without a steel weapon has no adequate means of offensive action at close quarters or of self-defense if surprised when in motion.

Turning to such facts as we have at our disposal we cannot find that the efficacy of saddle-fire has been established. It was used in the American Civil War. It was also used by both sides in South Africa. In both wars its use appears to have been exceptional, while its material effect is stated by those who experienced it in South Africa to have been very slight, although the Boers who used it had had exceptional training, and were probably greater adepts than town-bred soldiers could ever become. The most claimed for it by British officers who used it is that it may sometimes have a useful moral effect.

To fire from the saddle at the halt and in motion would necessitate the prolonged and habitual training of the horse as well as of the cavalry soldier, and we can find no grounds for a belief that such fire would prove effective, except, perhaps, in the case of individuals in special circumstances. The difficulty in shooting with any degree of accuracy from a horse moving at speed requires no explanation. The difficulty in shooting from a horse pulled up short from a charge and under fire—since the enemy must be presumed to be resisting—does not seem likely to be less.

For these reasons it seems to us that cavalry, charging on the principle advocated by Mr. Childers, must dismount to fire on reaching close quarters. When the enemy is sufficiently accommodating to leave cover close to him unwatched and unguarded, to which the cavalry can gallop, and behind which the horses can be left, this operation is feasible. If he does not do so—which we take to be the normal case—it seems to us that it would be more difficult for cavalry to pull up and dismount in the open, under close rifle fire, than to charge home, led by its officers. It is worthy of note that troops using a rifle cannot be so led.

Further, it seems to us that this pulling-up and dismounting at the last moment—even if men could be got to do it, which we doubt—would be likely to prove a very costly proceeding, and that the enemy, if he could be given a chance, would prefer to meet such a maneuver rather than a charge home with cold steel.

In considering the question of weapons, it is not sufficient to confine our investigations to the original attack. We must also consider possible counter-attack. For instance, Mr. Childers' analysis of the Boer charge at Roodewal is incomplete. He considers what might have been the value of the steel weapon and a knee-to-knee formation to the Boers, and he concludes that they would have been useless. We agree. The failure of the Boers on this occasion must be attributed to the absence of any moral ascendancy over the enemy. The surprise failed; they had no numerical superiority, and there was no fire preparation except the totally insignificant saddle-fire during the charge itself.

Grenfell met the attack by fire; but if his force had been armed with sword or lance, and trained to rapid maneuvers combined with cohesion, it is an interesting speculation whether he might not have gained better results by means of a "shock" counter-attack. It seems to us that Grenfell's most effective reply to the Boers would have been to meet them by fire from a portion of his force till their attack faltered, and then to clinch the matter by a charge of the remainder with the *arme blanche*.

This is one of the examples quoted by Mr. Childers. It seems to us to show the value of a training in which various tactical methods and various weapons can be utilized and combined. It provides also an example of the failure of Mr. Childers' method, and affords an opportunity of illustrating how an effective use can be made of the *arme blanche* against that method when wrongly applied.

We will next consider an example of the success of Mr. Childers' proposed methods, namely, Bakenlaagte; but before doing so we desire to say a few words as to certain conditions on which the chances of success of any method of attack seem to depend.

Mr. Childers is emphatic in his view that it is not necessary or even desirable for the form of offensive which he advocates,

to depend on covering rifle fire or artillery support, to enable the objective to be reached. He disclaims the need for any such assistance for his charges, and bases this belief on the invulnerability to rifle fire of the horseman moving at speed.

Here we are in direct conflict with him. We believe that charges against riflemen, whether made as he proposes or with cold steel, can only be successful, in the face of opposition which is not altogether insignificant, if the conditions allowed the attack a certain moral ascendancy. This moral ascendancy may result from surprise or overwhelming numbers, but where these conditions are absent it can only be obtained by establishing superiority of fire as a preliminary step. The mere movement at speed aided by saddle-fire is, we contend, insufficient to produce it.

We believe, further that when once sufficient moral ascendancy has been gained the nature of the weapon with which cavalry is armed will not affect the chances of its being able to charge home. The question at issue is as to the most effective means of obtaining good results after charging home.

On this point Bakenlaagte seems to offer some evidence. On the British side there was a harassed rear-guard which had been withdrawing for many hours in the face of vigorous attacks, and was, in addition, facing a cold, driving rain. On the Boer side we have the arrival of reinforcements at the critical moment in sufficient strength to give it an overwhelming numerical superiority. The arrival of these reinforcements was quite unknown to the British till the charge actually took place, so that a certain element of surprise was introduced.

For the details of the action we must refer the reader to the *Times* History of the War and the map contained in that work. According to the author of this account, Botha initiated his charge at the very moment that he saw the British rear-guard rise and mount in order to withdraw from Ridge A to Gun Hill. The moment was admirably chosen, and the circumstances all contributed to increase the *moral* of the attack while reducing that of the British rear-guard.

As to the opposition encountered, we read that Greatwood's and Lynch's detachments of the Buffs (infantry) were overwhelmed between Ridge A and Gun Hill, the Boers "dropping

a few men to disarm their prisoners." It is a small point, but we doubt whether this slight weakening of the attacking force would have been necessary if these detachments had been ridden over, say by a lancer brigade.

The description of the remainder of the charge is worth quoting in full: "With scarcely a check the charge continued; it caught, swallowed up and captured both the covering sections of Scottish Horse and mounted infantry, and ended finally in the hollow at the foot of Gun Hill. This was dead ground both from Ridge B and Gun Hill, and here the Boers flung themselves from their ponies and pressed on foot up the hill, firing and shouting as they came."

No account could illustrate more clearly the essential difference between cavalry action and that of mounted riflemen. The Boers, in the full tide of success, judged it necessary to dismount at this critical moment. The result was that they were obliged to enter into a fire struggle which lasted 20 minutes before the hill was captured. We are told that during that time "no reinforcements reached the hill," and that the only counter-attack attempted during the action was an effort made by two companies of the Buffs under Major Eales, after the hill had been captured, when the conditions were entirely unfavourable; but it is easy to conceive what a difference the 20 minutes' delay to the attack might have made in the results of the day.

We claim that a cavalry force as ably led would not have dismounted at the foot of the slope and afforded the enemy the opportunity to recover his initial disadvantage. We are told that the dead ground reached to within 30 yards of the British firing line. We do not believe that a charge of disciplined cavalry which had reached the foot of the slope would have pulled up, or could have been stopped by fire in the last 30 yards. We must remember the absolutely overwhelming numbers and the elation of the initial success. In our opinion cavalry handled on the principles inculcated in Cavalry Training would have ridden over the hill inflicting many casualties on the British on the way; the original line would have swept on to the farm at Nooitgedacht, and spread consternation and havoc amongst the convoy, while the supporting squadrons dealt with any resistance that might be left in the defenders of the hill. In

fact, a partial success might have been turned into a complete victory.

Our conclusions from the facts of Bakenlaagte are that the success was due to causes other than the armament of the Boers and the formation in which they charged, and that the limitations in the measure of the success is evidence in favor of the *arme blanche* and of the methods laid down in Cavalry Training.

It may be claimed that if the Boers, armed as they were, had not halted they would have gained a complete success. The had been armed with steel and trained to depend on it under reply seems to us to be that they would not have halted if they such conditions.

In fact, the example we have just quoted illustrates an important virtue claimed for the *arme blanche*. The tendency of human nature under fire is to seek cover and hold on there, since to rise from it increases the danger. This tendency works in two ways when both sides are under heavy fire; just as the defending side inclines to hang on in its trenches, so the attacking side tends to remain under cover and to seek to shoot the enemy out of his position without exposing itself. If proof of this tendency under modern conditions is required, a study of the operations in Natal for the relief of Ladysmith will afford it.

The chief reason why infantry soldiers are given a bayonet is to foster in them the desire to close with the enemy. They are taught that this must be the object, and that the primary use of fire is to assist their forward movement in the direction of the enemy with a final bayonet charge in view. The actual amount of killing done by the bayonet in modern war has been comparatively small. After South Africa many theorists recommended its abolition. Yet deeper thinking has led to the conclusion that the moral effect of the bayonet is out of all proportion to its material effect, and not the least important of the virtues claimed for it is that the desire to use it draws the attacking side on. This theory has been accepted by those best qualified to judge by experience of human nature in war. There seems to be a great similarity of thought between those who favored the abolition of the bayonet and those who desire to deprive cavalry of the *arme blanche*. We also think there would be a similarity

in the results. To take the sword from cavalrymen would be, to some extent, to take away their desire to close—to encourage them to seek for effect by long-range fire. It might constitute a serious obstacle to the realization of Mr. Childers's methods of charging.

This encouragement of an offensive spirit is one effect of a steel weapon. What is its effect on the enemy? Is the "terror of cold steel" really a myth? On this point let us examine, for example, the battles of Wœrth and Gravelotte. Time and again the Germans held on to the ground they had won under a devastating fire. Time and again they fled before French bayonet charges, without awaiting them. Are foot soldiers charging with bayonets more terror-inspiring, or more difficult to stop by bullets, than charging cavalrymen, who believe in their ability to charge home?

Mr. Childers may not agree in the value of examples taken from a war which was fought before the introduction of the magazine rifle, but if the magazine rifle is to be upheld as a nerve soother where cold steel is concerned we must not ignore the effect of the same weapon in producing nerve tension when in the hands of the enemy. We hold that this attribute of the magazine rifle will in reality tend to maintain, if not to enhance, the terror of cold steel in the battles of the future. In fact, we look to the magazine rifle to produce the situations in which the fear of cold steel will give us the victory. This is indeed the basis of all modern tactics.

Although we maintain that the *arme blanche* is by no means obsolete, it must be admitted that Mr. Childers's contention could be upheld as to the impossibility of training cavalry to the efficient use of both rifle and cold steel, there would be a strong case against the retention of sword or lance. The arguments given in the foregoing pages refer more particularly to the battlefield, on which the results of all military operations are decided. Even on the battlefield, however—still more in the operations preceding the battle—it cannot be denied that for one opportunity of using cold steel effectively there will be many of using the rifle. For this reason there can be little doubt that, if cavalry cannot be made efficient in both weapons and must be restricted to one, that one should be the rifle.

Mr. Childers maintains that experience shows that cavalry cannot be trained to both weapons. He appeals to history. Has history spoken definitely on this problem? In what campaign, up to date, has cavalry been employed that had been carefully trained in the use of both weapons? We are not aware of one. The Boers were not trained in the use of the *arme blanche*. Our own cavalry in South Africa had not been seriously trained in the use of the rifle. It was armed with an inferior firearm, and had fired a few rounds with it annually, but rifle shooting and rifle tactics held a very different position in its training, and in its regard, to what it holds now.

Mr. Childers quotes the American Civil War. In his reference, however, to this war, he omits to mention that, although a rifle was added to the equipment of the United States cavalry soldier shortly after the war commenced, the sword and revolver for use at close quarters were not discarded, and that this equipment, as a result of the experience gained in the American Civil War, has been retained ever since.

It would be out of place here to discuss the merits and defects of the breech-loading pistol in addition to or in substition for the *arme blanche*, as the main point is whether the mass of the cavalry employed in that war was trained at all before the war.

It is useless to claim that history has given a final verdict on this problem. So far as history has spoken, its voice appears to us to be in favor of the possibility of cavalry being trained to use both weapons, *i. e.*, the rifle and the *arme blanche*. Our cavalrymen, trained to *arme blanche* work, adapted themselves, with considerable success, to the use of the rifle in South Africa. Although there seems to be a good deal of popular misapprehension on the point, cavalrymen used the *arme blanche* freely in the American Civil War, and it appears that the use of it tended to increase as the war went on; they also used the rifle with considerable efficiency.

We believe that cavalry which is capable of using either weapon, as occasion may demand, will be more useful in war than cavalry which can only use one of the two. We believe that the possibility of becoming efficient in both must remain a matter of opinion until cavalry which has been carefully

trained to both has been fully tried in war. And we believe, meanwhile, that the opinion of experienced cavalry officers on training is a safer guide to follow than the opinion of Mr. Childers. Their opinion is that regular cavalry can be trained to both. It must be remembered that our present peace training aims at producing dash, cohesion and discipline, combined with an offensive spirit and good horsemanship; and that, even if Mr. Childers proves correct in his views, the time spent in inculcating these qualities cannot be said to have been thrown away, unless it can be proved that the training in fire tactics has been neglected in consequence to a dangerous extent.

The truth seems to be that the real difficulty of the problem lies less in training the men to be capable of using both sword and rifle than in educating their officers to judge rapidly which weapon to employ at any given moment. No doubt errors of judgment must be expected in this matter, as they must be expected in all operations of war; but we cannot afford to abandon a valuable weapon for that reason. Moreover, it does not seem to us that there will be much—if any—more difficulty in judging when to charge with the *arme blanche* than there would be in judging when to undertake the style of charge that Mr. Childers recommends.

The judicious selection of opportunities for, and the skillful execution of a charge undoubtedly call for much previous study, thought, and practice; but, so far as our regular cavalry is concerned, the necessary attention can, and will, be given to the problem. Professional officers, and men who serve for 7 or 8 years with the colors, have both the time and the opportunity to learn. It is different with our mounted troops other than regular cavalry, however. There can be no reasonable doubt that neither the officers nor the men composing these troops can learn the use of both rifle and *arme blanche* in their short peace training. This being so, it seems obvious that they should train in peace with the rifle only, that being far the more generally useful arm.

It may be argued that it is illogical to claim that the *arme blanche* gives additional power to cavalry, and then to recommend that mounted troops, other than cavalry, should be armed with the rifle only. The reply to such a contention is that

yeomanry and similar bodies of troops, who train only for a few days in the year, cannot be expected to meet highly-trained regular cavalry on equal terms, however we arm them; and matters cannot be equalized by any increase in the number of weapons they carry. On the whole they will stand a better chance armed with one weapon which they have acquired some skill in using, than if they had more than one, were unskillful with each, and lacking in judgment as to which to use. Moreover, there are other factors which considerations of space forbid the discussion of here, such as the nature of the country that yeomanry are primarily intended to fight in, the nature of the duties that would be allotted to them in war, and the possibility of arranging for them to work with regular cavalry, thus combining fire power with the sword. Moreover, if time were available after embodiment, it would be possible to equip yeomanry with the sword and to instruct them in its use.

The combination of the power of the two weapons seems to us the ideal to aim at and we cannot agree that it is beyond our reach.

It may be that there is sometimes a tendency to favor training with the steel weapon at the expense of training with the firearm. We agree that this is unsound, but we do not agree that it is necessary to take away sword and lance altogether in order to correct this tendency, and we think that in proposing such a remedy Mr. Childers has rushed into the extremes that he complains of in others.

CAVALRY MACHINE GUN DETACHMENTS.*

VIEWS and opinions concerning the value of machine guns have become definite by now and the machine gun is now universally acknowledged to be an extremely valuable, if not absolutely necessary, auxiliary arm for cavalry; consequently a material increase of this arm in the near future is very

*Translated from *Kavalleristische Monatshefte*, September, 1910, by Harry Bell, M. S. E., U. S. Army.

possible. This increase may take place as follows: by attaching a combined detachment to each cavalry division (as is the case with us now), or attaching one machine gun detachment to each cavalry regiment. Without going into all the details of this question, we will remark the following:

The organization of the main army, its utilization and manner of fighting will always govern the employment of machine guns, as it will that of any other auxiliary arm. As is well known, cavalry regiments are employed either as part of the cavalry division or as divisional cavalry. To attach machine guns to the latter would undoubtedly be more advantageous than disadvantageous, but we cannot hope to see that done at the present time because political, economical and other governing factors are not favorable; therefore the main question to be considered is that of attaching machine guns to cavalry divisions.

The mounted fight is as a rule employed by the cavalry divisions to solve its task; cavalry fights dismounted only when mounted action is out of the question. Accordingly, machine gun detachments must be organized and trained like cavalry.

Concerning the mounted action of larger bodies of cavalry we will state that in most cases only those auxiliary arms (artillery and machine guns) which are already with the advance guard, can timely interfere in the fight and that these auxiliary arms have but scant time at their disposal for their destructive work. These arms being attached to the different groups in the march column, can but seldom act in accordance with the intentions of the highest commander in a case of emergency, and if they wait for orders from him, their interference will be of little use, by reason of their being too late.

The different groups, arriving at a rapid gait at their respective places, will in most cases proceed to the immediate attack, for there is no time for preparatory, introductory work. The highest leader will then undoubtedly regret not having his machine guns organized in one body from the very start.

It will always be easier to make necessary detachments from a whole than to organize a whole from scattered detachments; the latter method often brings official friction in its wake. Therefore an organization of machine guns into cavalry division detachments has many advantages. Special conditions necessitate

special methods of fighting, which also means a change of organization of the main arm and consequently a change in the auxiliary arm.

In Switzerland, on account of the peculiarity of the terrain, the cavalry regiments are liberally endowed with machine guns; and this method can be resorted to everywhere when the nature of the terrain, cover, and cultivation preclude a combined utilization of larger bodies of cavalry.

Only so much can be detached without danger from the main arm to serve as *auxiliary arm* or for *special service* (pioneers, telegraph service, etc.) as the main arm can bear without being materially weakened. To create auxiliary arms at the cost of the main arm is always to be condemned and will become specially dangerous where proper training is lacking and where numerous other detachments for special service are already causing a heavy drain.

Where such necessities do not obtain, where auxiliary arms are created by augmentation of the recruiting contingent, and where they maintain themselves independently, auxiliary arms may be more numerously organized. In such cases they also receive separate quarters and are not required to crowd, as new formations, into the already overcrowded quarters of the mounted arm and will, in that case, not threaten the very existence of the main arm.

To what extent machine gun detachments prove of value to infantry battalions we cannot say, but have no doubt that there will be found many who favor the method of having battalion machine gun detachments.

The organization of cavalry machine gun detachments in existence in Austria appears to fulfill all requirements. It might be well to increase the number of guns to six or eight, so that the main force will have a sufficient complement left after making necessary detachments. A disadvantage of our present system is that not all regiments are in the situation to practice with their machine guns during the course of the year. Still, it is believed that our present organization will be found reliable, if proper care is taken to always have the requisite number of men and horses in the detachments and to train them properly. To consider cavalry regiments merely reservoirs from which we may

continuously take the best and send back unsuitable material, is reprehensible. It is the duty of the machine gun detachment commander to have and keep his material and personnel in the highest state of efficiency.

Concerning the officers for machine gun detachments we may say that undoubtedly many officers will seek detail therewith. All these applicants should be carefully examined and only the very best material selected. It will undoubtedly be of great advantage to a lieutenant to be detailed for three or four years to duty with the machine gun detachment, and especially so if that lieutenant has the good fortune to serve under an efficient detachment commander. Younger, efficient captains, who cannot yet receive command of a troop, might perform good service as machine gun detachment commanders.

Seeing that the number of machine gun detachments is small, vacancies for machine gun detachment commander are not numerous; therefore there is no dearth of *suitables*, whom a casual detail will benefit, for, as is well known, the duties of a machine gun detachment commander in regard to training and leading his detachment are manifold and highly important. To gain this accomplishment, the years a cavalry officer serves as subaltern (and they are many) must be utilized to the fullest extent by such temporary details, for there is no chance for making up for lost time on receiving a permanent detail. Before reaching the rank of captain an officer should possess all necessary qualifications of a machine gun detachment commander.

The commander of that cavalry regiment to which the machine gun detachment is attached must feel himself personally responsible for it; he must consider it an additional troop of his regiment; must train it as cavalry and instruct it in all matters pertaining to that arm of the service; he should also detail the officers of the machine gun detachment frequently to perform troop duties and give them chances of commanding a troop at times. In this manner these officers would retain their aptitude in horsemanship and would feel themselves to be a part and parcel of the regiment.

To resume: It is especially desirable to have a combined machine gun detachment for each cavalry division. If everything has been provided to secure existence for these detachments (in-

cluding quarters without making cavalry regiments suffer thereby), and should promotion in the detachments be also secured, then weaker machine gun detachments might be created also for divisional cavalry, in which the number of guns should be the same in war as in peace.

We should never forget that this necessary auxiliary arm will and can materially increase the value of the main arm with which it is closely allied.

In the above outlined views we lay no claim to innovation or originality; they are based on simple, practical experiences and are the result of deductions that machine guns are an absolute necessity to cavalry. The number of new organizations, however, should be in accordance with available means and existing conditions in order to increase in every respect the value of the arm to which they are attached.

THE AEROPLANE IN WAR.

From the *Broad Arrow*, September 23, 1910.

GENERALS will no longer have to spend half their time in discovering what is on the other side of the hill. The air-scout will do it for them. The incalculable quantity, which skill was able to turn to account and thereby secure success, has disappeared. A commander has lost the power to hide his general disposition from the enemy. This much at least has been learned from the maneuver in Picardy, on which the attention of the military world was fixed a fortnight ago. As a rule, with potent inventions practical application in the art of war disappoints sanguine hopes. But with the aeroplane exactly the reverse has happened. It has achieved more than its most ardent friends anticipated. The French, after a long period of eclipse, once more lead in military evolution. Sober critics of competence admit that they have changed the conduct of war. They made no attempt at bomb-dropping or any of the other sensational possibilities of the aeroplane, but concentrated on

its proved capacity for observation. The result has so far justified them that it decides their particular military preparation for the future, as well as those of other nations.

For the point they have determined is the reasonable precision with which the "military bird" can take detailed and accurate information in the air. It was thought that the new arms at their necessarily high rate of speed would not be able to do either, and if they did would not be able to transmit their intelligence in precise terms to headquarters. It was also believed that Army officers would not have the same mastery of aircraft as pioneer professionals. All such prophecies were falsified at the Picardy maneuvers where the men and the machines played their part as reliable instruments of war. They determined beyond question their power of discovering the dispositions of an opposing force as upon a map, and of reporting them to such purpose that action could be taken on them at once. It is obvious, then, that a new and terrible element has been introduced into military science. In the history of every campaign, the conflict in the Far East not excepted, the efforts of the generals on both sides, one perceives, were directed to hiding the dispositions of their forces from their opponents, the skill with which they succeeded in doing so determining the issue of battle. Because we so often failed to mislead the Boers in this respect was one reason why the war in South Africa was so prolonged.

To estimate the character of the revolution which the new instrument of observation will work one has merely to compare it to the present "eyes and ears" of the Army—Cavalry. They act as a screen, whose function it is to learn what the enemy is doing, and to prevent him, if possible, from learning what their own side is doing. But at their best the information they obtain concerns only the disposition of the enemy's front, and this is not necessarily that which makes for victory. A general may bring up large forces at an unexpected place, or change the preparations for his main attack from the right to the left, and Cavalry learn nothing of either movement. Surprise and guesswork have, therefore, been permanent features of war in all ages. But with the aeroplane "the eyes and ears" of armies will have an uninterrupted view, not only of the enemy's front, but of his

flanks, center and rear. Not that it can be used at any time, or with absolute certainty, but it is reliable enough to serve the purposes of war so as to transform it. No one who has closely followed the French maneuvers can doubt this for a moment. Apparently the war game is going to be played in the future like whist when one knows the cards one's opponent holds in his hand.

It is contended by some that under actual war conditions the aeroplane will not be able to perform the functions it performed in the late manœuvres in Picardy. At the height at which it can usefully observe the dispositions of an army it will be brought down by weapons already in our possession. But surely the aviator is like every other servant of his country employed in the combatant services—he carries his life in his hand. None of the inventions of the present generation, submarines and torpedo-boats especially, have been dropped because they can be destroyed by other inventions. There are experts who hold that the vital parts of an aeroplane are so few that even if it were hit several times there is no certainty that it would be brought down. There is a probability, moreover, that the airman might be able to take his ship out of the enemy's reach. Again, if he himself were seriously wounded the aeroplane travels so swiftly that he might be borne to a place of safety before he lost control. But there are other chances of escape for the aerial scout. His vessel is invisible at a comparatively short distance, even with a telescope, and as its surface is being reduced it will be a smaller target for the enemy's fire in the near future than it is now. Also, the rate at which it moves must be a form of protection to it. Krupps notwithstanding, no artillery gun has yet been invented which can check the flight of an airship. Rifle fire to be effective must be highly concentrated. That is to say, before an air-scout can be put out of action it will engage the attention of a body of men variously estimated from 500 to 10,000. What this will mean in war no one can foresee, but it is enough to justify the use of airships. There will always be plenty of daring spirits ready to man them.

It is to be hoped that our Government is following events in France with a view to the adoption of a more energetic policy

with regard to aviation. Even in France public opinion had to exert pressure before the military authorities moved quickly enough. We may, therefore, be certain that in England they will want the same spur to action. It certainly requires no sharpening except from daily happenings. It may be that the War Office is waiting for the results of our own experiments at the manœuvres, but as they are likely to be small indeed as compared with the developments in France this hardly seems necessary. The aeroplane as an instrument of war has arrived. It only remains for us to arm the two Services with it by means of the knowledge and experience gained by other Powers. Once that step is taken it will be with the aeroplane as it was with the submarine: we shall better our instructors in its evolution. But so far we have not regarded it seriously. Now that "it has proved its value as a formidable engine of exploration and reconnaissance, as well as a marvelous instrument for transmitting orders," there is no excuse for our indifference. One thing is certain: The Power which possesses machines, even of a poor type, will have the advantage over one which has none. But there is no reason why we should not have them of the best.

THE MIND OF THE FIGHTING MAN.

A CRITICISM.

By T. MILLER MAGUIRE, LL. D.

From the *United Service Magazine* of October, 1910.

"Faites la guerre comme Alexandre, Annibal, César, Gustave-Adolphe, Turenne, le Prince Eugene, et Frederic; lisez, relisez l'histoire de leurs campagnes, modelez vous sur eux; c'est le seul moyen de devenir grand capitaine et de surprendre les secrets de l'art."—NAPOLEON.

"Every individual accepting the King's commission must do so, knowing what that commission entails, and have some idea of the standard of elementary education that is required to understand the various subjects of military every-day life."—SIR H. SMITH-DORIEN.

"There is an enemy greater than the hospital, the d—d 'I don't know!' From the half-confessing, the guessing, lying, deceitful, palavering, equivocating squeamishness and nonsense of 'I don't know' many disasters originate.

"Instruction is light! Non-instruction is darkness! The work fears his master! If a peasant knows not how to plough the corn will not grow! One wise man is worth three fools—give six—and even six are little—give ten! One clever fellow will beat them, overthrow them, and take them prisoners!" —SOVOROFF (*Suwarrow*).

"After sufficient general education and 'Quand on connait deja la theorie de quelques principes fondamentaux c'est surtout par la lecture de l'histoire militaire qu'on peut acquerir les qualités necessaires à un general; le coup d'œil rapide et le sangfroid sont les grandes qualites qu'il doit recevoir de la nature, l'étude approfondie de l'histoire lui donnera toutes les autres.'"—JOMINI.

"Duty is heavier than the mountains and death is lighter than a feather. . . . A soldier should always act with reflection, watch over his character and weigh well his words . . . do his duty without despising his enemy, however weak; without fearing him, however strong."—THE MIKADO (*Proclamation*, 1882).

"In an officer courage without skill is a form of insanity."—VON HOENIG.

"Education is the means for advancement of knowledge and capacity. All officers are expected to be diligent in their endeavour for the improvement of their own knowledge and capacity."—BARON SUYEMATSU.

"No nation can expect to be great that doth not make the profession of arms its principal honour, study, and occupation."—BACON.

"Such is the sway of your great men o'er little.

. . . . . .

There was not now a luggage boy but sought
Danger and spoil with ardour much increased;
And why? Because a little odd old man,
Stripped to his shirt, was come to lead the Van."

IT IS with no small hesitation that I presume to differ from any member of the Royal Navy whose records are the summary of the best qualities of our race, but I do venture to challenge the position laid down in his essay on "The Mind of the Fighting Man," by Commander E. H. Currey.

The present shortage of officers is the result, not of too much, but of too little devotion to Education.

The Greeks worshiped gods and goddesses of Wisdom, and of Knowledge, and of all branches of Science and Art, and especially of Poetry and History. Apollo, Minerva, Diana, and the Muses were the ancient representatives of our ideals of mental development, and of the ideals of Raleigh, Condé, Napoleon and Jackson, of Moltke and of the Arch-Duke Charles. Moloch, as represented in Biblical mythology, was the receptacle of the victims of ignorance and falsehood, and the votaries of Wisdom never disappeared into his maw. The Romans followed in

Greek footsteps, and in their shrines the forces and graces of Learning were adored, and their emperors and orators paid enormous fees to private instructors and philosophers. Even so the greatest Tartar and Mongolian heroes reckoned knowledge as above all things precious. At their worst they never sank so low as to hold a ball-player in higher esteem than a man of learning, or to think an eminent polo-player more illustrious than even a very third-class historian!

There is no analogy between the worship of Wisdom by a few in England and the forgetfulness of its voice which led so many foolish Israelites to such a doom as Moloch's maw. To say that Education is pursued with frenzy in England is to be very oblivious of the facts of the case. All experts, military and civil, with one voice declare that the Molochs of our race are sport, games, idleness, and ignorance. I have searched in vain through the annals of religion to find any prophets or preachers from Solomon to Marcus Aurelius, St. Thomas Aquinas or Calvin or Manning or Trench, who confounded Education with the basest forms of cruel idolatry.

We are as to Education inferior absolutely now, and relatively to our position a hundred years ago, to Germany and to the United States and Japan. The mass of independent gentlemen in these countries, and also of merchants and soldiers and farmers, are very much better educated than the average men of the same rank in England, and yet these states have produced since 1806 soldiers of prowess, reputation, education, and courage, inferior to none. Yet they deny that Moloch rules their realms, and that Education is his agent. On the contrary, they declare, and leading chiefs of each realm have written to me to prove, that Fredericksburg and Chancellorsville and Atlanta and Sadowa and Königgrätz and Mukden were won by the able and zealous schoolmaster—not by game players.

To the truth of this statement Lord Charles Beresford and Lord Roberts, Sir Ian Hamilton and Lord Wolseley, Capt. Mahan and Count von Moltke, Baron Suyematsu and General Kuropatkin have all testified. Where does the gallant Naval officer find testimony in his favor? What was his object in his essay on the "Mind of the Fighting Man"?

The fact that distinguished teachers and Knowledge are worse rewarded and have a lower status in England than jockeys or cricketers, than legal condottierri or unscrupulous political charlatan vote-catchers, seems to prove that Mammon and Moloch and that evil crew, "Peor and Baalim and Astaroth and Osiris and Anubis," are attracted by Cimmerian darkness, and "Night's Daughter Ignorance," and not by the dry light of Learning. If the candidates for Woolwich are few and unfit, it is because the methods of the Army Council and the Public Schools have "killed the germ of intelligence" and consecrated mental darkness and despicable aspirations among our youth, and that our richer classes are becoming more degraded and less cultivated than their ancestors of a hundred, or even fifty, years ago. This is proved by a visit to any private study, or by the perusal of any collection of private letters, and above all, by the reports of the Royal Colonial Institute. Has Commander Currey read General Lea's *Valour of Ignorance?*

I absolutely deny that any great masters of the art of war derived their skill from practice rather than from books. The few examples given by Commander Currey prove nothing. A very exceptionally great genius may have been independent of instruction and study, especially before the scientific conditions described by the gallant officer rendered able command without careful training impossible, and mere valour ridiculous. But I contend that the successful officers have usually owed their advancement to STUDY. Moreover, very few distinguished commanders could have learned the art of war in any great war; they learned, perforce, in time of peace, as opportunities for obtaining skill in great wars, fortunately for mankind, take place but seldom.

Except against savage or semi-civilized races, or in some revolutionary epoch, no general can practice his art in many real wars; he must learn to be fit for battle on the parade ground, at manœuvres, and above all, in the study.

"The Sovereign Good of Human Nature."

If we only imitated our greatest modern rivals, in the worship of Knowledge and search for Truth—the acquisition of which is the "sovereign good of human nature"—Commander

Currey's idol-god would soon again fall, not for the first time, from his brazen throne, as Milton sang in his immortal Ode—

> "And sullen Moloch, fled,
> Hath left in shadows dread
> His burning idols, all of blackest hue;
> In vain with cymbal's ring
> They call the grisly king
> In dismal dance about the furnace blue."

So much for theory, now for experience. If Education, military and civil, leads to the fires of Moloch, how is it that all the greatest and most successful leaders of men in war without exception were most ardent scholars, and never ceased to insist on study and cultivation of the mind by the aid of books and of able instructors? And the few great generals whose education had been comparatively neglected in their early youth, never ceased, like Blucher, to deplore the fact, and yet his education had never been so absolutely neglected as that of the average Eton boy of 17 years old at the present time.

Your correspondent compels me, reluctantly, for the twentieth time, to give examples from Military History to support my theory that, as Ruskin proved at Woolwich a generation ago, a sound, complete and all-round education is of more practical value to military than to any other leaders of men; and that the art of war is not learned during war any more than the art of medicine is learned by the patients' bedside. The trusted practitioner in both cases must be up to date in other men's theories and experience, as well as attentive to his own observations.

I need not pray in aid or appeal to ancient or mediæval history. It is well known that the greatest generals from Alexander to Mithridates, and from Cæsar to Antoninus, and from Richard Cœur de Lion to Edward I, Saladin and Timurlane, were very accomplished scholars and men who never relied on mere courage or ignored careful and thoughtful strategic plans before or after their decisive or hand-to-hand combats.

Learned Soldiers of Genius.

Gustavus Adolphus was a splendid scholar, was well versed in several languages, patronized learning, endowed colleges, knew Xenophon's military writings thoroughly, and always car-

ried during campaigns a copy of Grotius' *De Jure et Belli ac Pacis.*

Frederick the Great, of Prussia, when a young man, before his father's death, never appeared in company till noon, though he rose early in the morning, as he devoted five or six hours daily to private and serious study.

Turenne, Michaud tells us, in his early youth made most complete studies in military history, and when he became a general all his campaigns were most carefully planned, no detail was too minute for his prescience, and he varied his schemes according to topographical conditions, the habitudes of his opponents and the character of their generals; regarding all of which he obtained accurate information betimes.

The Chevalier de Bauterre, a fellow-student of Bonaparte's at Brienne, wrote on the 10th July, 1797: "Buonaparte paid no regard to the study of Latin, and in consequence lost favor, but without ceasing he worked at history and fortification and attack and defense. I was in a position to observe the marvelous energy with which he reveled in research into military annals and the details of the lives of illustrious men. My young fellow-student, when I was on the library committee, wearied me by constant demand for books. For the rest his character was reserved and his delight was in solitude."

Napoleon wrote to his brother Joseph, King of Spain, from Mayence, the 1st August, 1813: "War is a business and must be learned like any other profession."

Napoleon wrote to Marshal Marmont, the 14th October, 1813, at Breitenfeld, from Rednitz: "I will send you an account of the battle fought by Gustavus Adolphus (in the early part of the seventeenth century) in positions similar to those which you occupy."

Napoleon said to Senator Roederer, the 11th February, 1809: "When the ignorance of a general causes the death of ten men when two would have sufficed, is not ignorance responsible for eight-tenths of the loss?"

When the ineptitude of officials and the impudence of bureaucrats cause the loss of 7,000 men when 1,000 would suffice, who is responsible?

Wellington tells us that he read regularly four hours a day from the date of the battle of Seringapatam, 1799, till Waterloo, 1815, and he was carefully taught at Angers by an eminent French instructor in the Art of War before he joined the Army.

Sir Charles Napier, the future conqueror of Scinde, after the close of the Peninsular War, went to study at the military college of Farnham, and said: "When a man attains a high position he feels keenly his want of information, but has no time for study. A general with an empty head cuts a sad figure." His brother William, the historian of the War in the Peninsula, kept him company. Sir Charles said to young officers: "By reading alone will you be distinguished."

M. de Bausset relates that when Napoleon was presiding over the Congress of Princes at Erfurth, 1808, he told the Prince Primate that when he had the honor of being a second lieutenant of artillery he was quartered with a good garrison library, and that he read every book in the library relating to the art of war three times over. He also said to General Caulaincourt: "Though I denied myself food when I was young in order to buy books, sometimes I was obliged to read at the shops of dealers in second-hand books."

Colonel Henderson says: "In the well-stocked library of the Lexington Institute Stonewall Jackson found every opportunity of increasing his professional knowledge. He was an untiring reader, and he read to learn. The wars of Napoleon were his constant study. He was an enthusiastic admirer of his genius; the swiftness, the daring and the energy of his movements appealed to his every instinct."

General Lee's educational position was so assured that before entering upon his career as one of the ablest generals of modern times he held the appointment of Assistant Superintendent of West Point Military Academy, then the best Army school in the world.

General Sherman, the devastator of Georgia, delighted in geographical and historical studies.

The Confederate generals were in the habit of referring, from memory, to Napoleon, Napier, and other authorities in their orders and dispatches, being well aware that all the West Point officers were versed in military lore, and, indeed, War

Office civilians were students of the art of war; for example, the Hon. L. T. Wigfall said, in the Senate, the 18th March, 1865: "General Hood asserts that a retreating army must lose more by straggling and desertion, if it does not fight, than it would in killed and wounded if it does. Napier differs from General Hood on this point. In discussing the losses of Massena in withdrawing from the lines of Torres Vedras, he says: 'It is unquestionable that a retreating army should fight as little as possible.'"

Von Moltke said that the success or failure of a campaign depended mostly upon the preparations made for it, and the manner in which it was entered into; and not on what is acquired during its course.

He also ascribed the total failure of the French generals in 1870 to their numerous and easy successes against inferior enemies in Africa and elsewhere, for which honors, decorations and medals were showered upon them. They came to think themselves heaven-born leaders without taking the trouble to learn how to lead; they stepped into the campaign of 1870, full of bluster and self-confidence, with fond notions of a parade march to Berlin. They were encountered by the Germans, whose leaders ONE AND ALL DURING PEACE HAD MADE THEMSELVES MASTERS OF THE ART OF WAR BY INTENSE STUDY and yearly practice at maneuvers. The power of knowledge on one side, the weakness of ignorance on the other, soon worked out their natural results—so must it ever be.

Peninsular Scholars.

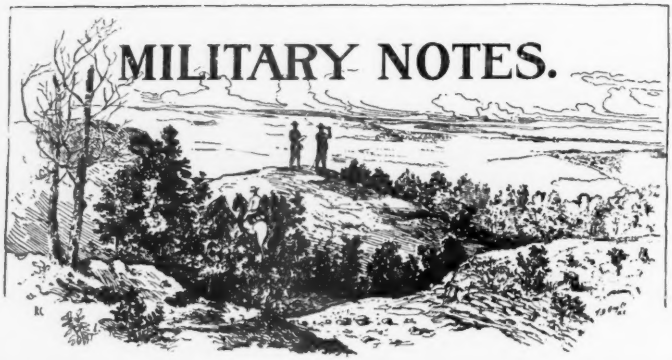
I have on my table before me the careers of twenty distinguished officers, friends and comrades of Wellington, and heroes of the Peninsular War. Every one of these worshiped Learning much more than the candidates for Sandhurst or Woolwich for the past ten years. Not one was sacrificed to the Moloch of Cricket and sport after the age of 15!

I have only space for a few: Sir John Moore was educated privately not only in the usual elements of a gentleman's education, but also in practical geometry; worked at Geneva and was taught Prussian drill at Brunswick, and yet joined our army at

the age of 15. Picton also studied at private tutors and had learned French and Spanish before 15. Leith and Beresford and others went to military private tutors in France, and could have taught the lads who are criticised in General A. Murray's reports. Hill, Cole, Pakenham, Pack and others were well educated by private tutors in Ireland.

Every one of these was far more liberally educated, including a course of *belles lettres* in most cases, than nine-tenths of Eton and Harrow boys are now, and none of them were game-playing or game-watching fools after the age of 16.

If my records and authorities be true, surely there are no undue sacrifices to any learned gods in our days, and Commander Currey's rhetoric is on a wrong tack!



THE CAVALRY EQUIPMENT BOARD.

ATTENTION is again invited to the work of this Board and the importance of complying with the request for suggestions from cavalry officers of experience.

In this connection, the following letters which have been furnished the President of the Board will be of interest to our readers and will, it is hoped, provoke further discussion of the points covered by them.

The headings and signatures are omitted, the latter by request.

In accordance with your suggestion, I beg to submit the following:

McClellan Saddle Tree.

By measuring the distance between vertical planes passing through rear ends of side bars of the saddles as regularly put on horses of Troop "G," 8th Cavalry, at Fort Yellowstone and the hip bones of the animals the average in inches was found to be six and one-half inches(*); the average distance between

similar planes for Troop "F," 8th Cavalry, at same station, using a eleven and half inch saddle so placed on each horse that the four fingers could be put between the front ends of side bars and the shoulder blade, was four and one-half inches. Possibly these two troops may have been a little larger than the average cavalry horses, but surely they were no larger, possibly not as large, as our cavalry horses should be. The inference drawn from these measurements is that we are not using as much bearing space on the horses' backs as is available. A considerable increase in the side bars is wholly practicable and would do much to eliminate sore backs. Larger seats would assist in eliminating abrasions among the riders.

In my opinion, the smallest seat should be twelve inches, following the present system of measurement. The greatest advantage of the extended side bars would be in keeping packs off the backbones of horses, especially of thin ones.

Spiders.

The present so-called automatic spiders, when once set, will not permit a change of bearing surface of the saddle. A simpler device has greater advantages. Eliminate the two unnecessary rectangular bronze spider holders at the tree and simply suspend the spider ring by two leather straps each with a buckle secured at the tree. By lengthening or shortening one of these we move the saddle slightly forward or backward as desired—a thing that cannot be done with the so-called automatic. If only one spider were provided with buckle this could also be done, but as these buckles are not inconvenient, and, as it might be necessary to considerably raise or lower the spider ring, it is considered better to have each spider adjustable. By eliminating the present system of spiders we avoid two extra thicknesses of leather at the ring—a most inconvenient place to interpose unnecessary leather, between the leg and blanket.

Hood (Tapidero).

This article has always been more of a fad than a utility—a fashion that was largely accentuated by contact with our Mexican neighbors.

*This is approximately correct. I have not the exact data at hand.

Some officers pretend that it offers a great protection against cold in the North and against mesquite, etc., in the South. For extreme weather in the North the Quartermaster Department supplies such good foot gearing that no open covering not artificially heated could have any appreciable effect on the feet. As to protection against bushes everyone who has had any experience must know that his boots or shoes will support as much or more scratching than he should give the shoulders and legs of his horse. If one were to advocate protection of parts of the body by parts of the saddle equipment it would certainly be in order to have a soft piece of leather belonging to the saddle cover the knees from front to the rear in cold or rainy weather; and if this protective system were carried still further, shelter of the head against the sun would be in order. The fact that the cowboys from northern Montana to southern Arizona have practically all discarded the antiquated tapidero should be sufficiently decisive for us. Nothing connected with the appearance of a cavalry horse is so unsightly as these huge pieces of leather swinging below the animal's belly.

Stirrup.

There is no stirrup that takes less room nor is stronger than a metal one.

It should be of non-corrosive steel, ample in size, and with a fairly wide tread. By not cleaning the non-corrosive steel it will become so dim as not to be specially noticeable. In addition to strength and compactness such a stirrup will permit the rider to change his weight from the balls of his feet to the hollows—a very restful thing that cannot be done with the present system.

Stirrup Leathers.

They should be of good, strong leather with buckles such as are commercially used the world over, but with no refinement of crossing the leather to cause the stirrup to hang perpendicular to horse. That is wholly unnecessary. There should be strong safety bars.

Bridle.

Double headstall and reins such as are used everywhere. Eliminate square buckles and excess of them not only about the

bridle, but also about the saddle; avoid also the unnecessary expense and inconvenience connected with the excessively long reins now issued. As single reins they are in the way and as double reins the inconvenience is increased.

Bit and Bridoon.

Such as are used by various cavalries and by practically everyone in the hunting field.

The bars should slide on the branches for obvious reasons.

The snaffle should be plain—without the increased rings, which are in the way; and the curb chain should be double and wide. It is understood that at one time a board reported against the sliding bar because it believed the lips were pinched between it and the branches. I have never been able with any of half a dozen in my possession to effect that, nor do I believe it possible with properly made bits.

Of six different kinds of non-corrosive metal the strongest I have thus far found is the next-to-steel furnished by Smith-Worthington & Co., New York.

Saddle Skirts.

Probably a short, light skirt would add comfort to the rider and save his breeches and blanket, but until the manner of carrying the rifle (or carbine) be determined I am unable to make any recommendations in this direction. With the present rifle under one leg and the saber under the other, it is folly to speak of leg aids for the cavalryman of average height.

Breast Strap.

If used, it should be plain. Many more horses than is generally supposed could wear this with advantage—thus permitting the excessive girthing to be done away with. Probably a 10 per cent issue might suffice.

Picket Pin and Lariat.

These are weighty and inconvenient. Besides, they make almost any pack unsightly and are too infrequently used to compensate for their disadvantages. Like the tapidero, they are carried many days for one possible day's service. The lariats are at times used for a temporary ground line, but even then the

horses could equally well be secured by the halters one to the other, as is the practice in pack trains.

As to picketing horses out, this is too rare to justify carrying the lariat at all times or the picket pin at all.

For emergency cases rope could be furnished detachments that might have opportunities of picketing horses. The picket pin and lariat should be classed as antiquated with the tapidero and hobbles.

Pistol.

Within my knowledge, there is no campaign nor battle that has been seriously influenced by this weapon.

There have been a few minor engagements wherein this firearm has been useful, but they could be repeated only under exceptional circumstances.

It is not practicable to so train the average man with his average horse as to get effective pistol firing results.

Probably something approximating our desires could be secured were we to select one or two troops per regiment from the total personnel and mounts. Even then it would be advisable to eliminate one of the other weapons.

For many years I had endeavored to make myself believe that the pistol was a component and useful part of the cavalryman's equipment. At present I have no qualms in denouncing it.

It simply is not possible to properly instruct the average man in one enlistment in the use of his four arms—horse, rifle, saber and pistol.

Moreover, I believe no man is at his best with any of his weapons when burdened with four. In fact, a man with full pack outfit and four weapons is nearly useless with any of them. The more he is incommoded the worse is his riding and consequently the more injurious his weight is to his overburdened mount.

If any officer doubt the shackled condition alluded to, I suggest that he try it. It is incredible that there should be under these circumstances the required buoyancy of spirit necessary to success in either man or beast. By all means let the pistol go. Some might claim that the pistol would be our only weapon for meeting cavalry armed with the lance. I would answer that

by saying the rifle (or carbine) held in one hand would be equally good or better for the first onslaught, after which the saber would be a match for the lance in close quarters.

Saber.

This weapon is always loaded and ready for use and is pre-eminently a cavalry arm.

I believe, however, it is not the best of its kind obtainable.

Regardless of instructions and drill, whether among officers or men, the normal use of the saber will be in striking and slashing rather than in thrusting. The theoretically correct method will give way to man's natural and involuntary tendency to strike. This arm should therefore be constructed chiefly with that end in view.

Rifle or Carbine.

Which shall it be, and how shall it be carried? These, it seems to me, are two of the most important questions that may be brought to cavalry officers in general and to the Equipment Board in particular.

I might say at the outset that few, if any, would be willing to sacrifice much in ballistic properties now or prospectively even to secure a weapon that could be carried with less inconvenience to man and less injury to beast. I also assume that by reason of led horses and loss in firing strength, due to holders, that cavalry will hardly be as strong as infantry.

On the other hand, superior mobility will give cavalry great advantage in selection of position, and will also permit it, with the assistance of its machine guns, to secure, hold and force positions that would be impossible for any other branch.

The principal question before us seems to be this: Can we afford to sacrifice anything whatever in ballistic value in consideration for the greater quickness and endurance that would inure to horses by reason of a better fitting pack?

And would a slightly diminished initial velocity, say 100 feet, really be a serious blow to dismounted fire?

It seems to me that if a lighter, shorter arm, approximately equally effective in fire action, can be secured, increased saving of horse flesh and therefore mobility demand a change.

If dismounted fires were our only duty or even outweighed all others, I would be most reluctant to suggest any change.

But reconnaissance, protection, raids and pursuit are peculiarly cavalry work, are highly important, and demand so much of the mounted force that a proper balance between them and dismounted fire must be sought.

Would we secure this balance by the adoption of an automatic carbine with an initial velocity of 2,600 feet, using a bullet of 150 grains—both of these results being entirely practicable?

Referring to your recent communication, in which you speak of the bed blankets, broken Pelham bit, etc., I beg to submit the following:

Bit.

While I have recommended the bit and bridoon it was not at all because I failed to value most highly the broken Pelham. It was simply because the former in skilled hands will suit a greater number of horses than the latter. On the other hand, the double metal and the increase of leather in the headstall are undoubted inconveniences that help offset the superiority of the bit and bridoon. Most horses can graze with the Pelham in the mouth, while very few can with the two bits. The convenience of bridling and unbridling and of fitting this bit with its curb to the horse should not be ignored. It sometimes requires considerable skill to fit the bit and bridoon so as not to pinch the lip; in fact, it is nearly impracticable to do this with some horses. On the other hand, the Pelham rarely, if ever, gives trouble in that direction. With green men and poor hands the chance of spoiling the horse's mouth is far less with the Pelham than with the other. The curb action of the bit and bridoon is more decided and quicker than the other, and therein lies the superiority of the double bit. In my stable both bits are continually used.

Perhaps the choice of these might be as follows: For skilled hands and higher education, the two bits; for less skilled hands and less skilled work, the broken Pelham.

NEW GERMAN CAVALRY FIRING REGULATIONS.

NEW Firing Regulations have recently been adopted for the cavalry of the German army. The following extract from a report of these Firing Regulations is from the *Revue Militaire Suisse:*

The new regulations attaches more and greater importance to dismounted action which is largely due to the introduction of a new carbine in the German army. This carbine is nearly equal in ballistic power to that issued to the infantry of their army, its bullet having an initial velocity of over 2,800 feet against that of not quite 1,900 feet of their former carbine.

This increased initial velocity is considered a point of vast importance as it allows the cavalry to fight infantry with a weapon which is nearly equal to that of the best rifle now in use in any army. Its precision, cone of dispersion, danger area and penetrating power are remarkable and will permit the cavalry to perform its duties far better than heretofore.

When the immense progress that has been made in the armament of cavalry since 1870 is considered, it will be seen that the sphere of cavalry operations has been greatly enlarged. Then only the dragoons, the hussars and some of the uhlans were armed with a passable carbine only, while the remainder were armed with a very poor pistol whose range was but a very few yards.

Now, that the whole of their cavalry is armed with a first class carbine, the precision of which is second to none, it goes without saying that it depends upon their training to develop the true value of this new weapon.

Their new regulations lays great stress on this point and that all their practice in aiming and musketry instruction must be carried out on the same lines as that adopted for the infantry. They, however, claim and lay great stress upon the fact that instruction in the use of the carbine is a secondary matter and that equitation should still hold the first place in their cavalry instruction.

A WARNING AND REPLY.

THE following are authentic copies of two historical letters which have been furnished by "An Officer Abroad." They are masterpieces of their kind and may prove of interest to our readers. It is said that there is a noted painting in St. Petersburg showing the conference of the Cossack officers at which the reply to the Turkish Sultan's letter was drafted.

LETTER OF TURKISH SULTAN MAHMD IV TO THE DON COSSACKS IN 1880.

I, Sultan, son of Mahomet, brother of the Sun and Moon, grandson and heir of the Almighty, owner of the kingdoms of Babylon, Macedonia and Jerusalem, of the Great and Smaller Egypt, king over kings, ruler over rulers, extraordinary knight invincible, constant keeper and protector of the tomb of Jesus Christ, guardian of God himself, hope and consolations of all Moslems, dread and great defender of Christians, I order you Cossacks of the Don to surrender and not bother me more with your raids. SULTAN OF TURKEY.

LETTER OF DON COSSACKS TO SULTAN OF TURKEY.

Now, Turkish devil, brother and comrade of the cursed Satan and secretary to Lucifer himself! What devilish Knight art thou? The devil throws out and will devour thy army. Thou will not be fit to have Christian sons under thy rule. We are not afraid of thy army and will beat on land and waters. Thou art a Babylonian cook, a Macedonian wheeler, a Jerusalem brewer, an Alexandrian goat, whipper of the Great and Small Egypt, swine keeper, an Armenian pig, a Tartarian devil, a robber of Fodohinsk, grandson of the devil, a pagan's forehead, the Devil take thee, so do the Cossacks name thee Pagan, thou are not fit to rule over faithful Christians. Date we know not, because we have no

calendar, the moon is in the sky, the year is in the same book and the day is the same in our land as in yours. Have a kiss from us —Halloh!

(Signed) The Ataman (chief) of the whole troop Ivan Sirkoinsh the whole Zaporojky Cossack troops.

VARIOUS NOTES.

MILITARY AEROSTATION IN GERMANY.

THE German military correspondent of the *Revue Militaire Suisse* reports that, in view of the many purely imaginative accounts which have been published of the work performed by military balloons at the last Imperial maneuvers, it is well to give what was actually effected. As a matter of fact, trials were made with only one dirigible, the "M II," as the "Gross II" is officially styled, and it goes without saying that it is not possible to consider this trial as in any way decisive. It is certainly not correct to affirm that the balloon contributed greatly to the strategic scouting of the cavalry and that it rendered any very great service to the commander of the "Blue" forces by transmitting to him continuous and very complete reports of the movements of the enemy.

What is true is that the dirigible did effectually cross the frontier of the "Red" army on the first day of the maneuvers in order to determine the direction of their line of march. It is also true that, after a short time, it met a strong gale accompanied by a great deal of rain, and that, after having one screw broken, it was obliged to come to the ground in the fields; and it was only on September 15, after having undergone necessary repairs, that it was able to resume flying, so that during the two most important days of the maneuvers it could render no service.

During the three days that followed, all that can be said is that it was able to maneuver without coming to grief. However, it is fair to say that the dense fog which prevailed compelled it

to maneuver at a low altitude in an attempt to see anything. Unfortunately, the very strict maneuver regulations, which were strictly observed by the umpires, insist on a balloon attaining an altitude of at least 1,300 meters before its reports can be admitted.

This altitude has been adopted as the minimum at which a balloon can be considered safe from the risk of being hit by projectiles and placed *hors de combat.* On the other hand, it is admitted that enough is not yet known as to the effect of fire on balloons to allow of laying down precise rules on the matter. It is therefore necessary to energetically protest against the assertion that the "M II" would have sustained grave injuries from the infantry and artillery fire. The trials that have been made up to the present time, on the contrary, show that rifle bullets do but little damage to the envelope of a balloon and, on the other hand, we do not yet know what will be the power of the guns which Krupp and Ehrhardt have constructed for use against balloons, as the trials have not yet been conclusive.

The ease and rapidity with which the "M II" disappeared in the mist when it seemed likely that some projectile might reach her must also be noted. Also that the wireless telegraph apparatus with which she was fitted worked perfectly well and that it was able to render service to the commander of the "Blue" forces.—*Journal of the Royal Service Institution.*

A NEW AUTOMATIC GUN.

According to the *Revista Militar,* Japan has adopted an automatic gun for its army which has been given trials at their School of Musketry at Tyyama. This automatic rifle was invented by Major Nambu of the Japanese artillery and Captain Hino of their infantry.

It works similarly to a machine gun, but is much more simple and it can be carried by a soldier as he does an ordinary rifle without his movements being impeded. When the gun is fired, the breech block opens automatically, the cartridge case is ejected and a new cartridge inserted when the breech is closed. The trigger must be pulled to fire the succeeding shot.—*United Service Magazine.*

CAVALRY MANEUVERS IN THE JAPANESE ARMY.

Since the war in Manchuria, special maneuvers have been introduced in the Japanese army. In previous years the two independent cavalry brigades have taken part in them, several field batteries being attached to them. In addition to these two brigades, it had been intended that the third brigade, organized last May, should also take part this year, but it was found that the organization of the brigade was not sufficiently advanced to permit it to do so. The artillery consisted of four field batteries, in addition to two horse artillery batteries, an arm which until very recently has not existed in Japan, but the creation of which has been called for since the last war.

Out of the 78,429 men which were incorporated in the Japanese army last year, the cavalry received 3,940 recruits, a large increase over previous years. This is due to the recent increase in their cavalry of two independent brigades.—*Revue de Cavalrie.*

Problems.

After much consideration, the Executive Council of the Cavalry Association have determined to discontinue, for the present, at least, the publication of non-commissioned officers' problems.

The publication of these problems was started with the hope and expectation that the non-commissioned officers of cavalry would generally take an interest in them and that they would be an interesting and instructive feature of the JOURNAL that would have a tendency to increase their interest in the JOURNAL. Notwithstanding the fact that many solutions were received for the first problem, yet they came from but one organization of regular cavalry and from one of the cavalry of the National Guard.

Solutions for the second and third problems were received from the non-commissioned officers of but one organization, Troop III, Squadron "A," National Guard of New York.

Editor's Table.

PROPOSED AMENDMENTS TO OUR CONSTITUTION.

Amendments to the Constitution of the U. S. Cavalry Association have been regularly proposed, as required by Article XIII, of the Constitution of the Association, which have been published and sent to the *regular active* members for their votes on the same, such members only having the right to vote on proposed amendments to the Constitution.

These proposed changes are in brief, as follows:

FIRST.—To allow the officers and non-commissioned officers of cavalry of the organized militia of the several States and Territories and of the District of Columbia to become regular members, with all the rights and privileges of such.

SECOND.—To provide for a Vice-President of the Association for each post, where there are five or more officers of the regular army stationed, and for each State, Territory and the District of Columbia where there is cavalry belonging to the organized militia. The duties of such Vice-Presidents to be that of representing the Executive Council at their respective stations and in their respective States, etc.; to endeavor to keep alive and active the branch associations; to assist the Executive Council in organizing Branch Associations and to submit suggestions regarding the Association.

THIRD.—To provide for Branch Associations at the several posts where there are regular cavalry stationed and in each State, Territory and the District of Columbia having cavalry belonging to the organized militia.

FOURTH.—To dispense with annual dues for members of the Association; to provide for a nominal initiation fee for all new members and to require that all members shall be and remain subscribers to the JOURNAL of the Association at the regular prescribed rates.

This last proposed amendment was submitted in order to comply with the rulings of the Post Office Department which is to the effect that members of associations and societies are not entitled to have the publications of such organizations mailed to members at the second class rate of one cent per pound, but that such rates only apply to actual *bona fide* subscribers to such periodicals at the regular subscription price for the same.

The first three propositions are the result of a conference of the officers of cavalry at Fort Riley with the officers of cavalry of the organized militia that attended the course of instruction held at that post in July, last.

It is hoped that all of our *regular active* members will prepare their votes on the propositions and return them to the Secretary of the Association with the least possible delay in order to save the trouble and expense of sending out the ballots a second time in order to secure the required number of votes on the same.

There will be inserted in this number of the JOURNAL, blanks for sending in the proxies of all other members of the Association for the Annual Meeting to be held on January 16, 1911.

BETTER HORSES.

Anything that has a tendency to increase the interest of our mounted officers in better horses for themselves and the service in general is a direct and positive benefit in more ways than one. That this interest is growing and that we are getting better horses as officers' mounts and in the ranks there can be no doubt. Particularly is this the case since the establishment of the remount depots and the opportunities afforded by them in procuring suitable mounts by the mounted officers of our service.

Many of the racing clubs or associations are now giving cups or money as prizes for officers' chargers and troop horses and this with the additional fact that nearly all of the horse shows have classes for officers' mounts and jumping contests, have increased this interest to a no little extent.

The races of the Maryland United Hunts, which were held at the Pimlico track, near Baltimore, early in September, 1910, had three races which were for army mounts. The first was run on September 1, 1910, and was the "Officers' Army Service Flat Race." The conditions of the race were as follows:

"For horses four years old and upward: The property, unconditionally and free from contingency, of the U. S. Government or of officers of the U. S. Army. By subscription of $5.00 each to the winner, with $200.00 added, of which $50.00 to the second and $25.00 to the third. The rider of the winner to receive a piece of plate. Horses to be ridden by officers of the U. S. Army in drab service uniform."

The winners of this race were as follows:

Major W. M. Roberts's b. m. Sequence, 5 years, by Royal Flush III—Parthia, 151 pounds (Owner), 1.

Lieut. C. K. Rockwell's br. g. Matabon, aged, by Lamplighter—Lady Prim, 151 pounds (Owner), 2.

Lieut. W. J. Scott's blk. f. May Lee, 4 years, by Knight of the Thistle—Blanch Herman, 153 pounds (Lieut. E. M. Whiting), 3.

The second was run on September 3, 1910, and was styled the "Army Mounted Service Cup Race," offered by the Washington Jockey Club, and was under the following conditions:

"Purse of $300.00 and cup for horses belonging to Troops and Batteries of the U. S. Cavalry and U. S. Field Artillery, serving in the Departments of the East and the Gulf, and to be ridden by enlisted men of these organizations. Twenty-five dollars to the rider of the winner; $100.00 to the Troop or Battery fund of the winner; $100.00 to the Athletic Fund of the Post of the winner. Fifteen dollars to the second horse, and $30.00 to the Troop or Battery fund of the second horse. Ten dollars to the rider of the third horse and $20.00 to the Troop or Battery fund of the third horse. The cup to be inscribed with the name of the winner, the name and rank of the rider and the Troop or Battery of the Regiment and to be held in the custody of the Troop or Battery for one year, when it shall again be competed for and finally to become the property of the Troop or Battery which shall win it for three years, not necessarily consecutive.

"Riders to wear olive drab service uniform with cap and horses to be equipped with regulation saddles and bridles."

The runners in this race were as follows:

Troop A, 15th Cavalry, Acme (37), blk. g. 12, Unknown, ridden by Corporal Thomas Kane, 161 pounds, 1.

Troop D, 15th Cavalry, Enis (75), blk. g. 10, Unknown, ridden by Private Charles A. Swinney, 161 pounds, 2.

Troop C, 15th Cavalry (68), ch. g. 12, Unknown, ridden by Corporal Edward Gosney, 160 pounds, 3.

Troop D, 15th Cavalry, Billy (58), b. g. 9, Unknown, ridden by Private Walter A. Bergman, 174 pounds, 4.

Battery E, 3rd Field Artillery, Randolph (67), b. g. 6, Unknown, ridden by Private Joseph Martin, 168 pounds, 5.

(Won in 1907 at Bennings, Washington, D. C., by Gregg, ridden by Saddler James G. Magrath, Troop "G," 13th Cavalry.)

The third was run on September 5, 1910, and was known as the "Officers' Army Service Steeplechase." The conditions for this race were:

"Four-year-olds and upward, the property unconditionally

and free from contingency, of the U. S. Government or officers of the U. S. Army. By subscription of $5.00 each to the winner, with $250.00 added, of which $60.00 to the second and $30.00 to the third.

"The riders of the three placed horses to receive a piece of plate. Horses to be ridden in service uniform by an officer of U. S. Army. About two miles."

The following were the winners in this race:

Major W. M. Roberts's b. m. Mingo, 5 years, by Margraviate-Push, 155 pounds (Owner), 1.

Lieut. E. M. Whiting's blk. g. Graustark, 5 years, Pedigree unknown, 155 pounds (Owner), 2.

Lieut. C. K. Rockwell's br. g. Matabon, aged, by Lamplighter-Lady Prim, 158 pounds (Owner), fell.

As has been noted heretofore, the Executive Council of the Cavalry Association has offered a cup for the best horse conforming to the requirements for officers' chargers exhibited at horse shows in Virginia during the season of 1910. A handsome and distinctive cavalry cup has been selected, from designs submitted by Black, Starr and Frost, to be given to the breeder of the winning horse in this competition.

It was expected and hoped that a photograph of this cup would be received in time for reproduction for this number of the CAVALRY JOURNAL, but in this we have been disappointed.

This cup was offered with the belief that it would tend to stimulate the breeding of suitable horses for army mounts and thus, in a way, help the good work along that is now being done by the Quartermaster General, working in conjunction with the Department of Agriculture, in this line.

Photographs of the competing horses are to be furnished for publication in the JOURNAL, and this of itself will have a tendency to educate our younger officers as to what is considered the best horse for cavalry service.

In addition, the holding of horse shows, tournaments, etc., at army posts leads to the belief that the interest in better horses is growing.

A very successful horse show was held at Fort Leavenworth last year, and another is proposed for this year, to be held in the riding hall of the Army Service Schools on November 5, 1910. No charge is made for admission or for making entries for this show and the expenses are paid by the Fort Leavenworth Field Club. One gallery of the riding hall is reserved for the officers and their families and the other for enlisted men and their families.

For this show there are eleven classes, as follows:

1. Children's Riding Class. Required: Walk, trot and canter.

REGENT.
Doing four feet six inches.

2. Ladies' Driving Class. Required: Driving at walk and trot (or pace) around hall and between obstacles.

3. Officers' Riding Class. Required: Walk, trot and gallop and to jump four obstacles—brush hurdle, post and rail fence, board fence and a stone fence.

4. Ladies' Riding Class—side saddle. Required: Walk, trot (pace or singlefoot) and gallop.

5. Officers' Chargers—private mounts. Required: Walk,

trot and gallop and inspection for conformation. Horse, 75 points; riding, 25 points.

6. Polo Ponies. Required: Running the wands, 25 points; mallet work, 25 points; execute figure eight at gallop, 25 points, and halting from full speed, 25 points.

7. Jumping Class for Officers. Required: Jumps to be the same as in Class 3.

8. Ladies' Riding Class—cross saddle. Required: Same as in Class 4.

9. High Jumping Class (Officers). Required: To clear a progressively raised bar. Horse jumping highest to win.

RAZZLE DAZZLE.
Doing four feet six inches.

10. Umbrella Race. Required: Contestants to start from a designated point, each carrying a number eight sewing needle, ride the length of the hall, dismount and hand the needle to a lady who will be in waiting with a thread. The lady will thread the needle and return it to the rider. She will then furnish him with a night shirt, which the rider must put on and button, a cigarette, which he must light and keep lit, and an umbrella, which he must open. The rider must then mount his horse and return to the starting point, thus equipped.

11. Ye Knights of Old. Required: Combat in the lists and knightly encounters with lance and sword.

An account appeared in the last number of the CAVALRY JOURNAL of the tournament of military sports held at Fort Huachuca. Three photographs which were sent us to illustrate that article arrived too late for reproduction in that number. They are inserted here to show that some very good jumping may be done with troop horses.

PONTEL CANET—POLO PONY.
Doing four feet two inches.

As said before, all this tends to increase the interest in the army, especially in the mounted services in horsemanship and consequently in better horses for those services.

A recent communication from the Chief of Staff of the Army, now being published regarding the attendance of officers at military tournaments, will also have its effect in increasing this interest.

AEROPLANES IN WAR.

PROBABLY no single invention of modern times has attracted more general attention than has that of the aeroplane. These heavier-than-air machines have been so greatly improved and developed within the last two or three years that their use for sporting and exhibition purposes has become so general that their appearance at county fairs is no more a novelty.

Records as to distance flights and heights obtained are being broken daily, and predictions as to their future possibilities are freely made.

It is said that the improvements made in aeroplanes since the Wright Brothers first made successful flights have far exceeded those made in automobiles in the corresponding length of time after their first appearance as a practical machine. It is also claimed that still greater development, particularly as to their motive power, will be made in the near future and that far greater achievements as to length of flight, altitude gained and the number of passengers carried may be expected.

Particular interest has been taken in these machines by military men of all nations on account of their supposed possibilities as implements of warfare, and nearly every country of importance is investigating and experimenting with them.

Every country in Europe, with the possible exception of England, which, like our own country, is holding back on account of economical or other reasons, has invested large sums in the purchase of aeroplanes and several have established schools of instruction for observers and mechanicians. Particularly is this the case in France, that now has flocks of them and has instituted a separate corps for manipulating them. It is true that Germany has a predeliction for dirigibles, yet that country has not neglected the aeroplane entirely, and has a creditable number of them also.

The foreign military magazines are filled with articles and discussions as to the merits of these machines for war purposes, and numerous books have been written on the subject of aviation.

While some over-enthusiastic writers have exaggerated ideas as to the extent of their use in war and have made absurd predictions as to what they will accomplish, yet the most conservative of the foreign writers agree that these machines will prove useful for scouting purposes, to a more or less extent, depending upon the circumstances of weather, etc.

In a couple of instances these reckless writers have ventured to claim that when the aeroplane is more fully perfected and armies are supplied with trained observers for use with them, that the services of the expensive arm, cavalry, can be dispensed with and that these aeroplane corps will become the eyes and ears of an army.

On the other hand, several writers have advanced the idea that when the aeroplane becomes useful for scouting purposes, and they admit that this is so now to a certain extent, that their use will broaden the field of operations for cavalry. That these machines will be compelled to ascend to great heights in order to be safe from rifle and artillery fire and that, while their field of view will be greatly extended thereby, it would be impossible for even the best trained observer to gain more than a general idea of the enemy's movements; that it would be impossible for him to orient himself or the enemy exactly under such circumstances, and that it would be impracticable for him to make a serviceable sketch. For these reasons they claim that cavalry will still be required to confirm and develop the information obtained in a general way by the aeroplane observer and particularly to investigate and oppose the operations of the enemy so discovered. Especially will this be the case when the enemy is reported to be maneuvering on the flanks and at a distance or when raiding parties are reported as operating on our own flanks or rear.

As to their bomb dropping possibilities, one English writer states that he who believes that there is anything in it has only to go to a second story window and try to hit a shilling lying on the pavement by spitting at it, while at the same time some one is throwing stones at him from the street.

Regarding the subject of aeroplanes displacing cavalry, the following from *"An Officer Abroad"* may be of interest to our readers:

"Being far from home and without friends, I was much upset by picking up an American paper and reading the enclosed clipping. I do not want to be stranded in a foreign country and be out of a job if young Mr. Fichel's convictions turn out to be true. Thinking that this article might possibly have escaped your ever watchful eye, I am sending it to you."

The following is the clipping mentioned:

TO REPLACE CAVALRY.

UNITED STATES ARMY OFFICER PREDICTS BATTALION OF AEROPLANE SHARPSHOOTERS IN NEAR FUTURE.

NEW YORK, Aug. 24.—That a battalion of aeroplane sharpshooters will take the place of cavalry in the army of the future is the conviction of Lieut. Joseph Fichel, U. S. A.,* who has been assigned by the war department to conduct a series of aeroplane experiments with Glenn Curtiss at Sheepshead Bay.

"My first flight," said Lieutenant Fichel in a preliminary report, "was to find out if it would be possible to aim a rifle from the air craft. I found it to be easier than when riding a horse.

"When I went up for the succeeding flights I had my rifle loaded with the regulation .30-caliber bullet. It was easy for me to sight the target in the middle of the field, and although I had to steady the rifle on one of the aeroplane supports it was not difficult to fire.

"Besides the actual shooting tests I am working on a table of figures on which to base the sighting and firing from the air. The completion of these tables will require six months' experiments. At present I believe it would be possible to shoot at a man from an altitude of 1,000 feet. The aeroplane sharpshooter would have the advantage of the shooting as it is well nigh impossible for the man on the ground to strike his opponent flying high.

"From a military standpoint the aeroplane is a most powerful machine for future wars."

*The army list shows no such officer as Lieut. Joseph Fichel. Probably Lieut. Jacob E. Fickel, 29th Infantry, is meant, as it is understood that this officer has been making some experiments in this line.

ESPERANTO.

THE growth of the study and use of this international language has been phenomenal, there being now fifty nations in which it is being used more or less. We have learned that not a few officers of our army have become interested in the study of this language and to them the following may prove of interest.

The editor of "Amerika Esperantisto," a magazine of Esperanto published in Chicago, 700 East Fortieth Street, has recently sent us the following communication:

"Doubtless you have long ago formed your opinion as to the merits of Esperanto, the international language. I hope that it is favorable; but as there is much irresponsible criticism of Esperanto, especially on occasion of the recent international convention in Washington, I want to offer an opportunity for every thinker to judge for himself. I have had prepared 100,000 brief grammars of the language in pamphlet form, and will send one free to any person who is sufficiently interested to ask for it, enclosing stamp for reply. I think it really due to this great movement for an international auxiliary language that you publish this letter, so that your readers may have the opportunity of judging for themselves."

MILITARY BOOKS.

WE have recently received from the U. S. Military Academy a "Classified List of Works on Military and Professional Subjects Recommended to the Graduating Class of the U. S. Military Academy" which has been prepared by a Board of Officers and which is a valuable compilation.

It was carefully prepared by expert officers, with the able assistance of Dr Holden, the Librarian of the Military Academy.

The list as published is classified under the several heads as follows: Administration, Tactics, Horses and Horsemanship, Art of War, Transportation and Supply, Signalling, Military Tropograhy, Military Engineering, Fortifications, Care of Troops, Ordnance, Coast Artillery, Law, Civil Engineering, River and Harbor Work, General History, Military History, Battles, Campaigns, etc., Military Biography and General Reference, Military and Non-Military.

Opposite the title of each book listed and under the headings of columns "Recommended for Officers of Infantry," of cavalry, of field artillery, of coast artillery or of Engineers are inserted "E" or "R," (Essential or Recommended), wherever the particular work is considered essential or simply recommended for the officers of the respective branches.

While it is impracticable to print this list in full, it being a pamphlet of sixteen pages, those books which are thought to be essential for cavalry officers and the more important of those recommended for them are given below:

ESSENTIAL.

Army Regulations, Field Service Regulations, Manual of Guard Duty, Firing Regulations, Cavalry Drill Regulations, Manual of Arms and Equipment–Cavalry, Engineer Field Manual, Manual for Courts-Martial and Federal Aid in Domestic Disturbances. These are all government publications.

Officer's Manual, Moss; *Studies in Minor Tactics,* Army School of the Line; *Aids to Scouting,* Baden-Powell; *Art of Reconnaissance,* Henderson; *Cavalry in Action,* P. S.; *Modern Horsemnnship,* Anderson: *Army Horse in Accident and Disease,* Mounted Service School; *Army Horseshoer,* Mounted Service School; *Notes on Equitation,* Mounted Service School; *Military Policy of the United States,* Upton; *Transportation of Troops and Material,* Baker; *Handling the Straight Army Ration and Baking Bread,* Holbrook; *Transmission of Military Information,* Scriven; *Individual and Combined Military Sketching,* Cole & Stuart; *Military Map Reading,* Sherrill; *Elements of Military Hygiene,* Ashburn; *Journal of the Military Service Institution and The Journal of the U. S. Cabalry Association.*

RECOMMENDED.

Tactical Principles and Problems, Hanna; *Letters on Applied Tactics*, Griepenkerl-Barth's translation; *Rifle in War*, Eames; *Letters on Cavalry*, Prince Kraft Hohenlohe Ingelfingen; *Suggestions to Military Riflemen*, Whelen; *Cavalay in Future Wars*, von Bernhardi; *Cavalry on Service*, Pelet-Narbonne; *Notes on Field Artillery*, Spaulding; *Horses, Saddles and Bridles*, Carter; *Diseases of the Horse*, Government Publication; *Breaking and Riding*, Fillis; *Points of the Horse*, Hayes; *Veterinary Notes for Horse Owners*, Hayes; *Operations of War*, Hamley; *Conduct of War*, von der Goltz; *Nation in Arms*, von der Goltz; *Valor of Ignorance*, Lea; *Applied Principles of Field Fortifications*, Woodruff; *Military Government and Martial Law*, Birkhimer; *Constitutional Law*, Black; *Criminal Law*, Clark; *and Law of Evidence*, McKelvey.

The following works on Military History, Battles, Campaigns, etc., are also among those recommended: *Battles and Leaders of the Civil War*, Century; *History of Cavalry*, Denison; *War and the World's Life*, Maude; *American Revolution*, Fiske; *Mexican War*, Wilcox; *The Yalu, Wa-fan-gou and Liao-Yan*, German General Staff Official Account of the Russo-Japanese War; *Campaign of Santiago de Cuba*, Sargent; *American Campaigns*, Steele; *War in South Africa*, German General Staff Official Account; *Times History of the War in South Africa, and The War With Spain*, Lodge.

The following are the books on Military Biography recommended: *Military Memoirs of a Confederate*, Alexander; *Cromwell as a Soldier*, Baldock; *Frederick The Great*, Carlyle; *Alexander*, Dodge; *Cæsar*, Dodge; *Gustavus Adolphus*, Dodge; *Hannibal*, Dodge; *Napoleon*, Dodge; *Grant's Memoirs; Stonewall Jackson*, Henderson; *Manassas to Appomatox*, Longstreet; *Sheridan's Memoirs; Sherman's Memoirs; Forty-six Years in the Army*, Schofield; and *General Lee*, by Taylor.

While some may differ with the Board as to the selections made, especially as to the distinction made in some cases between those reported as essential and those that are simply recommended, yet it is a fine choice of books for the military student to have.

It is not understood why Dwyer's *Seats and Saddles, etc.*, is recommended for officers of the Field Artillery only, nor why Carter's *Horses, Saddles and Bridles* is not entered as essential for cavalry officers to have.

To this list the Board would have undoubtedly added the following had they been in print at the time the list was prepared: *Cavalry Tactics as Illustrated by the War of the Rebellion*, by Captain Gray; *Cavalry in War and Peace*, by General von Bernhardi; *Tactics*, by Colonel Balck, translated from the German by Lieutenant Krueger; *Sherrill's Military Topography, Map Reading and Military Sketching* and *The Schaho*, German Official Account of the Russo-Japanese War.

A MONTHLY JOURNAL.

THE following extract from a letter received from one of our members who is also a capable writer of many articles, notes, etc., for the CAVALRY JOURNAL, is flattering and consoling to the managers of the Association and JOURNAL, the Executive Council:

"I have just received the CAVALRY JOURNAL for September, and read most of it. I want to congratulate you on this splendid number, for it is certainly full of most interesting and useful reading for all of us. In fact there is so much good reading in this number, as indeed there generally is in all of the numbers, that I wonder why you do not publish the JOURNAL monthly.

"Of course the reasons which guide you, economic and otherwise, escape me, but simply from the point of view of the one who reads the CAVALRY JOURNAL, it would appear that there is really more in each number, as at present issued, than is necessary to give a man in one dose; that if the JOURNAL should reach us every month with even one-half as much matter, it would be more carefully read and produce greater effect.

"I simply suggest this as it has occurred to me. Doubtless that, for many reasons, my suggestion is not a practical one."

While the recommendation to give smaller doses and give them more frequently to our readers is in some respects a good one and has been fully discussed by the Executive Council, yet it has been deemed inadvisable to make the change.

Before the change from a quarterly to a bi-monthly was made, a year and a half ago, two of the former and most capable editors of the CAVALRY JOURNAL wrote that, in their opinion, the proposed change was a mistake. They believed that it would be found difficult to procure sufficient original articles for publication in the JOURNAL to keep it up to the usual standard and that it would be found necessary to pad with reprints, translations, etc.

To a certain extent their prediction has come true, as at times the outlook for original matter for forthcoming JOURNALS have been dismal indeed.

It is true that it was the intention, when the change from a quarterly was made, to reduce the size of the JOURNAL to about that of the other service journals but for some reason or other this has not been done. However, that is the intention still and when done, the dose will be at least smaller, and it is hoped will produce the effect suggested by our correspondent.

LONG DISTANCE OR ENDURANCE RIDES.

The extracts from the report of General Thomas appearing in this number of the CAVALRY JOURNAL, and a letter received not long since from one of our old time cavalry officers, has drawn the attention of the writer to the fact that he had long ago promised to prepare an account on this subject, particularly an account of a ride made by him in the Nez Perce Campaign in 1877.

With this end in view, much data, including several translations and reports of famous rides, has been gathered from various sources but as yet the time has never been found to put this material in shape for publication.

A long article on this subject appeared in the *Militaire Spectator,* of March, April and May, 1906, which gave accounts, more or less complete, of many long distance rides made by riders of all nations from the time of one made by Cæsarius, a Roman, in the year 700 B. C., down to those made in recent years from Berlin to Vienna and from Vienna to Berlin by officers of the German and Austrian armies.

From these and the other reports gathered, it is almost impossible to make comparisons as to the relative merits of the horses ridden, as so little is given as to the conditions under which the races or rides were made. In order to do this, it should be known whether or not the horses were conditioned for the ride and how; the condition of the roads and the weather; whether or not the horses could receive food and shelter regularly and the kind and quantity of the feed supplied.

It appears in some of the accounts that the horses were evidently stimulated or "doped" by the use of drugs or strong food, and especially in the races of recent years in Germany, France and Austria, molasses and sugar were regularly fed to the horses, generally with other food but sometimes mixed with the water given them.

In nearly all of these noted rides, it was a test of the endurance of the horse alone, as but one was ridden, although in some it became a test of the endurance of the rider where two or more horses were used.

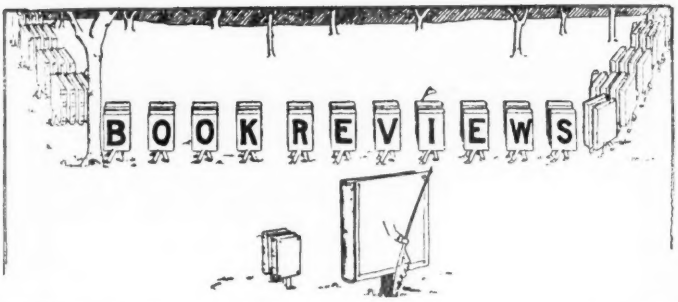
In some of these rides, the means used to keep the horse alive and going were brutal in the extreme and had a tendency to bring these rides into disrepute.

To be of any practical use to our officers of the mounted services, any account of such rides should give the condition of the horse and the method used to condition him; the gaits used; the halts made, and the care and feeding of the horse during the ride. What would be still more beneficial are accounts of marching commands in raids, on scouts, and

when going to the relief of others where long distances are covered in a short time, by commands of various sizes.

Of course, in time of war or in such campaigns as we had on our plains in former years, it was often necessary for scouts and couriers to push their horses to the extreme limit of their endurance and often with little or no feed for the horse outside of what could be obtained by grazing during the brief halts.

It was hoped, and it is still the wish of the writer to obtain accounts of long distance rides made on the plains by officers and men of the army as well as by scouts and others for incorporation in the proposed article, It is, therefore, earnestly requested that any one having knowledge of such rides, particularly those of our older cavalry officers who served on the plains, will communicate the particulars of the same to the Editor of the CAVALRY JOURNAL.



Cavalry Tactics.* If you want to know what our cavalry can do *and has done,* get this book. It is most valuable and is unique in its conception of the way to treat the subject of cavalry tactics.

The author has carefully selected from the Rebellion Records, personal memoirs of commanders, etc., the most reliable testimony as to the use that was actually made of cavalry under the varying circumstances of the Civil War. No attempt has been made to write a connected story. In place of so doing, the author has collected his facts in some 500 extracts, numbered serially and indexed. In each case the authority for the statement is given.

In the margin opposite each extract is a short note giving the substance of the extract, together with a statement of the battle and date to which it refers.

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*"Cavalry Tactics as Illustrated by the War of the Rebellion." Part I. By Captain Alonzo Gray, Fourteenth U. S. Cavalry. Published by the U. S. Cavalry Association, Fort Leavenworth, Kansas. Bound in cloth, price $1.50, postpaid.

(For the convenience of those who may wish to bind the succeeding Part II (to be issued later) with Part I, the book may be procured in paper binding for $1.25, postpaid.)

The extracts have been carefully collected under the subheads under which they naturally fall, such as:

"Arms and Their Uses—Revolver vs. Saber."

"Security and Information."

"Transportation of Supplies."

"Animals—Care, Endurance and Diseases."

Each set of extracts is followed by a short comment, pointing out the principle of modern tactics illustrated or violated.

The work gives examples of all possible uses of cavalry, from the charge of saber against saber to the attack of a gunboat or of a semi-permanent fort with eight-foot relief and a ditch fifteen feet wide.

In a short review it is not possible to even mention all of the points that are brought out and illustrated. A few additional ones to those already mentioned are:

Brief resumé of the organization and armament of our cavalry from its beginning till the present time.

Illustrations of the relative value under varying circumstances of the lance, carbine, revolver and saber, showing that each has its advantages and disadvantages and the circumstances under which each will have the advantage or be under a disadvantage. These illustrations are numerous and exceedingly instructive. They do not lead to a conclusion in favor of any one arm, but show that each has its place and exactly what this place is relative to the others.

Numerous examples of the following expedients are given:

Use of carbine mounted.

Charges in column of fours.

Charges in line of fours.

Mounted reserve on *each flank* when using dismounted action.

Mounted charge of small units to assist an infantry attack.

Mounted skirmishers to cover the formation for a charge.

A few of the shorter extracts are here given to show their character:

Momentum o the charge. Wilson's Raid, April 1, 1865.

Extract No. 47.—Such was the momentum of the Federal charge, that one of their horses, striking squarely against the wheel of a piece, broke every spoke and split his own breast open. (Campaign of Forrest, etc., p. 667.)

Cut seems to be used more than thrust. Opequan Creek, Sept. 19, 1864.

Extract No. 55.—Devin, with his gallant brigade, burst like a storm of case shot in their midst, *showering blows on their heads and shoulders*, trampling them under his horses feet and routing them in droves in every direction. (Merritt in Reb. Records, Vol. 43, Part I, p. 444.)

Cavalry catches infantry in a cañon where it can't deploy and charges it successfully. Opequan Creek, Sept. 19, 1864.

Extract No. 80.—Wilson, with McIntosh's brigade leading, made a gallant charge through the long cañon, and meeting the advance of Ramsen's rebel infantry division, drove it back and captured the earth works at the mouth of the cañon. (Sheridan's Report, Reb. Records, Vol. 43, Part I, p. 47.)

This book will give the reader a far more clear and complete understanding of the whole subject of cavalry tactics than any work yet published. It does not theorize—it states the facts. If you desire to learn more about the exact situation covered by any extract you are told where to go to find the original.

The author has in mind the writing of a second volume which shall be a complete cavalry study, and the combining of the two volumes in a single work. For the benefit of those who will later desire the complete work, the first volume has been printed in paper covers, so that it can be bound uniformly with the second volume or combined with it in a single volume.

I advise every cavalryman to get this book at once, and I believe that those of other branches of the service who purchase the book will be glad tnat they did so.

With it the cavalryman can strengthen his own belief and be able to convince others that "modern cavalry can do anything if it is properly trained."

ELTINGE.

Troop Leading and Sanitary Service.* This is a study, essentially in two parts, covering the movements of a division for a march toward the enemy, the resulting engagement, and the dispositions made for the pursuit after the enemy is defeated, each portion of the study in the handling of the line troops being immediately followed by a study *in detail* of what the sanitary service did to meet, sometimes to anticipate, the requirements arising from the movements of the other troops. The study as far as concerns all but the sanitary service is by Major J. F. Morrison, General Staff, whose reputation throughout the service is a sufficient guarantee of its tactical excellence. The study as concerns the sanitary service is by Major E. L. Munson, Medical Corps, also well and favorably known to all of us, both personally and through his writings. In this work Major Munson has taken up a line of work never before attempted in English. The many and varied situations that will confront the sanitary service in war are brought about in a perfectly natural way, correct and reasonable dispositions are made to meet them, and it is shown *why* these dispositions are made. In each case that arises he clearly shows the interdependence that exists between the fighting troops and the sanitary service and illustrates how they should work together in team work for the good of the whole division.

As the title indicates, the work is a study in *troop leading* that gets down to the minor details of all the work of the division, not hesitating to devote considerable space to the work of a section or platoon when these fractions are performing duty which is in any way different from that of all such fractions as part of a higher command.

The book has already been accepted and adopted by the Surgeon General of the Army and the Surgeon General of the Navy for study by the officers of their respective Corps.

*"A Study in Troop Leading and Management of the Sanitary Service in War." By Major John F. Morrison, General Staff, U. S. Army, Senior Instructor Department of Military Art and Assistant Commandant Army Service Schools, and Major Edward L. Munson, Medical Corps, U. S. Army, Senior Instructor Department Care of Troops, Army Service Schools. Approved by the Surgeon General U. S. Army and published by authority of the War Department. 1910. U. S. Cavalry Association Agent. Price $1.25.

We can furnish back numbers of the CAVALRY JOURNAL. Also complete sets of the JOURNAL bound as desired.

Copies of CAVALRY JOURNAL No. 47 desired.

In active campaign every line officer would need to know of what the various sanitary units consist, how much road space and camp space they require, where and how they may be found during an action, what they can and will do for the line troops which they serve, how long it may reasonably be expected to take them to perform such service, what dispositions the line commander, whatever his rank, should make of his sanitary units and the interdependent relation that exists between the line commander and his medical adviser, in order that the sanitary service may be able to efficiently serve the fighting troops, thereby enabling them to exert their full fighting strength.

This book does not deal in glittering generalities; it gets right down to particular cases and covers, by examples, a wide range of conditions. The book is printed in good type on good paper and comes in three bindings, *viz.*, paper, khaki cloth and limp leather.

Every officer of the mobile army should make haste to familiarize himself with this study, which contains professional information that is necessary to him and that can, so far as I know, be found nowhere else. I do not think that any officer will regret having added this book to his library. E.

Medical Service in Campaign.* In this book of 160 pages, prepared by direction of the Surgeon General of the Army and published by authority of the War Department, Major Straub has done a most valuable service not only for army medical officers, but for officers of the line as well.

He covers a variety of subjects which are of fundamental practical importance in relation to the work and tactical use of the Medical Department in the field, and gives in condensed form a large amount of information with which every officer in the army should be familiar, but which has previously been so scattered through the literature as to have practically been unavailable to those most interested and concerned.

*"Medical Service in Campaign" by Major Paul F. Straub, Medical Corps (General Staff), U. S. Army. 1910. P. Blakiston's Sons, 1012 Walnut St., Philadelphia. Price $1.50 net.

The author has long made a special study of the subject and is eminently well qualified to prepare such a guide as the one in question. The treatment of the subject is thoroughly practical, and the writer has very wisely handled it from the standpoint of general principles to be adapted to varying special tactical conditions and has not fallen into the error of attempting to lay down fixed and inflexible rules. The general scope of the book is indicated by the subjects listed in its table of contents, as follows: Preparation for field service; orders; map reading; weapons; efficiency of cover; battle casualties; transportation; sanitary organization for war; administration; battle dispositions; sanitary service with the regiment; dressing stations; field hospitals; stations for slightly wounded; sanitary service of the line of communications.

No elaborate sanitary organization being necessary for service with such small forces as are ordinarily found together under our military system in peace, there has been too much of a tendency on the part of both our line and medical officers to overlook the fact that a very large and complex sanitary organization is an absolutely essential component of such large forces as must compose a modern army in war. The tactical management of its sanitary units has also been generally disregarded, though, of course, of essential importance not only to the efficient internal administration of the Medical Department, but also in relation to the tactical handling of the combatant forces.

These matters are well considered and clearly explained in the book in question. They deserve careful study by line officers, who cannot properly disregard the sanitary service in connection with tactical problems having to do with any considerable number of men. And both line and medical officers will find much of great value therein in relation to the internal economy and administration of the various sanitary establishments which must accompany fighting troops.

The book is very attractively got up in a convenient pocket size volume, with limp leather cover and gilt edges. Typographically, also, it leaves nothing to be desired.

It is not too much to say that it should be in every library which makes any pretense at covering the elements of a military

education and should be available to every officer who has to do with the tactical handling of troops or the disposition of the disabled.

EDWARD L. MUNSON,
Major, Medical Corps.

Map Maneuvers and Tatical Rides.*

The large and increasing call for Captain Sayre's book, entitled "Map Maneuvers," made it necessary to reprint the work, former editions of which were exhausted.

In this 3d Edition Captain Sayre has changed the title, carefully revised and rewritten the greater part of the book, and added about forty pages of new matter, a portion of which deals with "tactical rides" (or walks), of which there is no other simple and practical discussion in English.

The method of giving instruction to younger officers, noncommissioned officers and the militia by these tactical rides is continually growing in favor in our service, so that the addition of this portion is most timely.

The chapter relating to maps not only explains the function of the map in map maneuvers, but it gives detailed descriptions of the principal war game maps that can be procured in this or foreign countries, and tells where they may be procured and the price.

The discussion of war game and maneuver problems has been rewritten and contains a number of suggestions which will be found useful to officers preparing problems either as map exercises or for field maneuvers.

Many officers believe that the one-sided map maneuver is superior to the two-sided for the giving of instruction. This phase of the subject is fully illustrated in the new edition.

Captain Sayre's book was originally intended for use at the Army Service Schools, but since map maneuvers have been taken up by the militia of many states, and, in consequence of recent

*Map Maneuvers and Tactical Rides. By Farrand Sayre, Captain and Adjutant Eighth Cavalry. Formerly Instructor Department of Military Art, Army Service Schools. 1910. The Army Service Schools Press, Fort Leavenworth, Kansas. Price 75 cents.

orders from the War Department, are to be taken up by post-graduate schools throughout the army, its sphere should be greatly enlarged and it should be greatly appreciated by and find a large sale among those who are taking up the exercises for the first time. Those of wider experience who are likely to be called upon to devise problems for or act as directors of map maneuvers will find many useful suggestions in the book.

Manchurian Battle-Fields.*

Major Glasfurd, an instructor in the Staff College in India, made an official visit to the Manchurian battlefields in 1907, and while there made panoramic sketches of all points of historical importance. This book consists of a reproduction of these sketches, each accompanied by a sketch map showing actual distances and relative location, while the panoramic sketches show how the terrain appears to the eye. This book will be found invaluable by all who undertake a critical study of the Russo-Japanese War. It is a necessary adjunct to any good history of that war. There is no text in the book except a few short paragraphs, supplementing the panoramic sketches, which give a word picture of the terrain. E.

Field Service Regulations.†

This book takes each paragraph of the new British Field Service Regulations and gives a synopsis of its most important provision. It is intended as an aid to one who desires to pass an examination on these regulations after a careful study of the original. It has no value whatever for the American army officer. E.

*"Sketches of Manchurian Battle-Fields." With a verbal description of Southern Manchuria. An aid to the study of the Russo-Japanese War. By Major A. I. R. Glasfurd, Indian Army. Hugh Rees, Ltd., London. Price 8s. 6d., net.

†"Synopsis of the Field Service Regulations." By Captain M. Muirhead. Gale and Polden, Ltd., London. Price 1s. 6d., net.

Napoleon's European Campaign.* A concise history of Napoleon's European Campaigns written by one who appears to know his history well. Each battle is illustrated by a sketch map showing the general character of the terrain and the relative positions of the opposing troops, while the salient features of the battle are covered by a few pages of text. The work is much too condensed for use in serious study of Napoleon's campaigns, but it will serve admirably to give one sufficient knowledge to enable him to talk intelligently about them without serious study; to permit him to coordinate among the rest a particular campagn under study; to supplement works that are without maps or those, like Bourrienne, which deal more with the court scandal than with military movements; or to serve as a guide to a general review after a critical study of the campaigns by bringing to mind all he knows and showing what he has forgotten. E.

Leinster Journal. We have received for notice a copy of the first number of the second volume of the *Journal of the Leinster Regiment.*

This is a monthly magazine of a semi-military nature which is well gotten up and finely illustrated. By being of a semi-military magazine, it is meant that it contains several articles that in no way relate to military matters although of interest to general readers, military as well as others. This refers to such articles as "Derby Day," "The Rubaiyat of a Bachelor," a poem; "From Liverpool to Lokoja," etc.

Among the military articles are the following: "A Trip Through Siberia to the Battle-fields of Manchuria;" "The Strategic Value of Ireland;" "On War Correspondents;" "Leinster Battle Series;" "The Storming of Fort Niagara;" "The Battle of Liao-Yan;" "The Law Relating to War on Land;" etc.

In so far as we know, this is the only magazine published by a regiment, and a very creditable one it is.

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*"Napoleon's European Campaigns." By Captain F. W. O. Maycock, D. S. O. Gale and Polden, London. Price 5s., net.

Publisher's Notices.

ARMY OFFICERS' RACES.

The recent successful running of races open to officers of the army, and the interest in this class of racing shown by the officers and the public at the late meetings of the clubs at Baltimore and Saratoga, has induced the United Hunts Racing Association to offer two races for army officers under similar conditions, at their race meeting to be held at Belmont Park Terminal, Queens, L. I., on election day, Tuesday, November 8th, and the Saturday following, November 12th.

The flat race is confined to horses owned by officers and the steeplechase, of about two miles, is open to horses owned by the government or officers of the U. S. A. In both races the horses must be ridden by officers.

In addition to the value of the purse to the winner, the winner will also receive a handsome silver cup in commemoration of the win. Officers should not overlook the opportunity to win one of these cups, and those desiring to make entries should address the United Hunts Racing Association, 571 Fifth Avenue, New York.

The well known firm of S. N. Meyer—Meyer's Military Shop —of Washington, D. C., appears as one of our advertisers in this number of the CAVALRY JOURNAL for the first time. This firm deals not only in military trimmings of all kinds but also in novelties of various classes, such as military pins and emblems, class pins, flags, designs, etc., etc.

This firm has long been favorably known to officers stationed in Washington, and we bespeak for them a liberal patronage from the service at large.

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